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Monterey, California



THESIS

AN ANALYSIS OF THE ACCOUNTING SYSTEM
USED FOR RESEARCH FUNDING
AT NAVAL POSTGRADUATE SCHOOL

by

Margaret A. Dunne

March 1987

Thesis Co-Advisors: James M. Fremgen
Gilbert P. Howard

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An Analysis of the Accounting System
Used for Research Funding
at Naval Postgraduate School

by

Margaret A. Dunne
Lieutenant, United States Navy
B.A., University of North Carolina at Chapel Hill, 1980

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
March 1987

ABSTRACT

Research has long been funded on a reimbursable basis at NAVPGSCOL. Commencing in FY1988, DoN research will be funded directly. Non-DoN research will be conducted at a budgeted reimbursable level. Altering the funding method requires that changes be made in research cost accounting. This thesis examines the way in which Federal activities receive and account for funds. It then describes the current system used to account for research funds at NAVPGSCOL. The budgetary and accounting implications of direct funding are discussed. An analysis of the research accounting information needs of users is conducted. Lastly, recommendations are made concerning the way in which research funds should be accounted for under direct funding at NAVPGSCOL.

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I. INTRODUCTION

A. GENERAL

The mission of the Naval Postgraduate School (NAVPGSCOL), as defined by the Secretary of the Navy (SECNAV), is

To conduct and direct the advanced education of commissioned officers, and to provide such other technical and professional instruction as may be prescribed to meet the needs of the Naval Service; and in support of the foregoing, to foster and encourage a program of research in order to sustain academic excellence. [Ref. 1:p. 1]

As this mission statement recognizes, quality instruction, coupled with a strong research program, are indispensable elements of advanced education. However, while teaching has been directly funded in the past through Operations and Maintenance, Navy (O&M.N) monies, research has been funded through reimbursables. SECNAV has directed CNO to ensure that, in the future, NAVPGSCOL's research program will receive a sufficient, consistent level of funding within the Navy budgetary process. SECNAVINST 7040.12, states, in part, that

Changes to current procedures to finance academic research at the Naval Postgraduate School are required to ensure that sufficient funding is provided, to establish increased financial control, and to ensure that the program is responsive to the needs of Secretary of the Navy (SECNAV), Chief of Naval Operations (CNO), and Commandant of the Marine Corps (CMC). Under current procedures, academic research sponsored by DoN activities is being performed by the NAVPGSCOL on a reimbursable basis. In order to remove the fiscal uncertainty inherent in this approach, we will begin to mission fund all such work through the school's Operation and Maintenance (O&M.N) operating

budget effective FY 1988. This new approach is consistent with the fact that academic research is an integral part of the academic curriculum and should therefore be funded as an element of the NAVPGSCOL's educational mission requirements. Some reimbursable activity in support of special programs and other DoD needs will be conducted. . . This policy will ensure that appropriate resource levels are applied in our budget in consonance with DoN objectives. [Ref. 2:p. 1]

Hence, commencing in FY1988, research will be directly funded.

B. REASON FOR CONDUCTING THIS STUDY

Changing the method used to fund research will, in turn, affect the accounting systems used. There are also duplications in the existing accounting systems and procedures which require evaluation. Accordingly, the question asked by this thesis is, "What is the most cost-effective, useful and efficient method of accounting for NAVPGSCOL research money, given the projected changes in funding?"

C. METHODOLOGY

Data for this thesis were gathered through interviews as follows:

- 1) Various personnel from the Academic Departments, Research Administration Office, the Comptroller's Department, and Supply Department were queried as to their duties. Document disposition was flowcharted and traced, and internal controls were examined.
- 2) Several Academic Chairmen and Principal Investigators were interviewed regarding their usage of the information contained on the Research Administration Office (RAO) Report versus that available on the Comptroller's Report. Their opinions of the currency, timeliness and accuracy of the RAO report were solicited. Further, they were asked if they found any of the information on the RAO report extraneous, whether or not they required

additional information, and if they would prefer changes to the report format. Investigators were also asked to describe any need for financial information concerning their projects which might have been expressed by sponsors in the past.

- 3) Interviews were conducted with the Deputy Comptroller, the Supervisory Fiscal Analyst, Reimbursable Accounting, the Budget Officer and the Director of Research Administration to determine their research accounting information needs. They provided much information concerning NAVPGSCOL procedures and the design of the present accounting systems.
- 4) The official in charge of the Internal Review program was interviewed concerning the status and design of the Internal Control and Internal Review programs which are currently being implemented.
- 5) The capabilities of the WANG computer (currently used to maintain the Comptroller's memorandum records) were examined, and software options were explored.
- 6) Interviews were conducted with personnel from Naval Supply Center, Oakland (the Authorized Accounting Activity (AAA) for the school), Field Support Activity (NAVPGSCOL's major claimant), and NAVCOMPT to determine their respective roles, and the form in which accounting information is aggregated and utilized by each.
- 7) Additionally, appropriate instructions, government accounting manuals and publications were reviewed.

It was the intent of this thesis to analyze the accounting system presently in use within the context of government principles of accounting and internal control. Having noted the various needs of users and determined the most cost effective way of meeting them, an accounting system was recommended for use.

D. THESIS ORGANIZATION

This thesis is divided into six chapters. Chapter I states the reason for conducting this study and discusses the research methodology and the interview formats. Chapter II discusses important aspects of federal accounting and internal control systems. Chapter III addresses NAVPGSCOL's accounting system. Further, it explains how research is funded and budgeted. Chapter IV notes the budgeting implications of directly funding research, both locally and in terms of the PPBS process. Chapter V analyzes the needs of the various users of research accounting data - such as the Office of the Comptroller of the Navy (NAVCOMPT), the major claimant, the research sponsors, the Authorized Accounting Activity, principle investigators (PI's), the Comptroller and his personnel, the Director of Research Administration and his staff, and the department chairmen. Lastly, Chapter VI outlines the method of accounting recommended for implementation by this thesis, notes an area requiring further study and draws conclusions.

11. BACKGROUND: DoD FUNDING, ACCOUNTING AND INTERNAL CONTROLS

NAVPGSCOL will receive in excess of \$16 million in FY 1988 for research, split between the Operations and Maintenance, Navy (O&M,N) and Other Procurement, Navy (OP,N) appropriations and reimbursables. Historically, funds have been divided between 200-300 research projects, performed for as many as 50 different sponsors. Properly accounting for these monies is both difficult and complex.

Government officials are in a position of stewardship, safeguarding the assets of the people, while using these assets as Congress has directed to achieve their assigned purposes. Title II of the United States General Accounting Office (GAO) Policy and Procedures Manual for Guidance of Federal Agencies states that

All management officials in Federal agencies share the responsibility for economical attainment of the purposes and objectives of their agencies. The increasing magnitude of Federal expenditures requires that every reasonable means be sought to obtain full value for each taxpayer's dollar spent. Effective accounting can play an important part in the discharge of this responsibility. Proper accounting for the financial and other resources entrusted to an agency is an inherent responsibility of the managers of that agency. [Ref. 3:p. 2-4]

The purpose of this chapter is to describe the basics of DoD funding, accounting and internal controls. Accordingly, Department of Defense (DoD) practices will be addressed as follows:

- A. Describe the way shore activities receive appropriated funds.
- B. Review constraints on how officials may use those funds.
- C. Detail the accounting principles and standards used in the federal government.
- D. Outline applicable accounting systems used by DoD.
- E. Discuss the accounting roles of AAA and the responsibility center.
- F. Detail the interlocking responsibilities for the internal control, internal review and audit programs.

A. FUNDING PROCESS FOR RESPONSIBILITY CENTERS

Congress assigns funds to agencies to operate specific programs which have been previously authorized. This is done via Appropriation Acts, which are public laws.

An appropriation is an authorization by Act of Congress to incur obligations for specified purposes and to make disbursements accordingly from the Treasury. Appropriations may be described as being for either expenses or investments, incrementally or fully funded, and of annual or multi-year duration. Appropriations within the Navy are as follows:

<u>Name</u>	<u>Purpose</u>	<u>Type</u>	<u>Duration</u>	<u>Funding</u>
O&M,N	Ops and Maintenance	Expense	1 year	Incremental
MPN	Military Payroll	Expense	1 year	Incremental
RDT&E	Research	Expense Invest	2 years	Incremental
APN OPN WPN	Procurement	Invest	3 years	Full

MCN	Construction	Invest	5 years	Full
SCN	Ship Construction	Invest	5 years	Full

Appropriated funds are released to the various agencies by the Treasury on a Treasury Appropriation Warrant. This warrant specifies the appropriation symbol, the amount, and any other Congressional restrictions. Warrants are then countersigned by the Comptroller General, making the appropriated funds available for the Office of Management and Budget (OMB) to apportion. Apportionment is a determination by OMB limiting the amount of undelivered orders (obligations) or expenditures which may be incurred during a specified time period. It may limit all expenditures and obligations or limit only a certain activity, function, project, object, or some combination of these. Apportionments are not made for periods longer than one fiscal year, even when the appropriation is multiple-year. [Ref. 4:p. 145] This permits control to be exercised over the rate at which funds are spent. Thus, OMB apportions funds to DoD, which subsequently allocates them to the various armed services.

Next, funds are allocated. This is an authorization by a designated official, such as the Comptroller of the Navy (NAVCOMPT), making funds available within a prescribed area to an operating agency, such as the Chief of Naval Operations

(CNO), for the purpose of making allotments and incurring obligations. The first subdivision of an apportionment, an allocation is intended to ensure that budget activities or programs below the appropriation level comply with the intentions of Congress. Funds from each appropriation are allocated individually. This maintains the separation of funds by purpose, as Congress specified. Funds are then reallocated to major claimants (such as Field Support Activity in the case of NAVPGSCOL) for distribution to responsibility centers. A responsibility center is a unit which is headed by an officer or supervisor who is responsible for the management of resources and can significantly affect the expenses of the unit.

Major claimants distribute funds directly to responsibility centers (such as NAVPGSCOL) by allotments, or authorizations by the head of an operating agency to the head of an installation or organizational unit to incur obligations within a specified amount. This is done with NAVCOMPT Form 372, Allotment/Suballotment Authorization (Figure 1) for most funds.

In the case of O&M,N funds, however, authorization is given via a NAVCOMPT form 2168-1, Resource Authorization (Figure 2), and is referred to as the Operations Budget or OPBUD. These O&M,N funds are further subdivided by the

ALLOTMENT/SUBALLOTMENT AUTHORIZATION

NAVCOMPT FORM 372 (REV. 6-57)

S/N 0104-LF-700-6700

ALLOTMENT NO N0001187AL22222

SUBALLOT. NO

FROM Chief of Naval Operations (Op-09BF) Washington, DC 20350-2000	TYPE OF AUTHORIZATION <input checked="" type="checkbox"/> NEW <input type="checkbox"/> AMEND NO
TO Superintendent Naval Postgraduate School (Code 002) Monterey, CA 93943	ALLOTMENT ACCOUNTING OFFICE ACCOUNTING NO N00228 (Name and address) Commanding Officer Naval Supply Center Oakland, CA 94625
TITLE OF APPROPRIATION AND SUBHEAD Other Procurement, Navy Education Support Equipment	APPROPRIATION SYMBOL AND SUBHEAD 1771810.G7YH

AUTHORIZATION

The total of this authorization is allotted to fund the purpose stated under "Instructions" and is subject to all limitations specified therein. All financial control, jurisdiction, and responsibility under Section 3679 R 5 and regulations thereunder, for the total amount allotted, is passed to the addressee. To accomplish the purpose of this allotment, amounts assigned to budget projects may be adjusted within the total limitation but cumulative adjustments to any one budget project totaling 10% or more must be reported to the allotter in accordance with NavCompt Manual, Volume 2.

PROJECT NO.	TITLE OR DESCRIPTION	PREVIOUS ADJUSTED AUTHORIZATION	AMOUNT OF THIS AUTHORIZATION
49	Education Support Equipment	\$0.00	\$4,315,000.00
TOTAL		\$0.00	\$4,315,000.00

INSTRUCTIONS

For procurement of items for lab upgrade and state-of-the-art equipment.

NAVCOMPT Form 2025 will be submitted monthly to NAVREGFINCEN (Code 621), Wash., DC 20360. A copy of NAVCOMPT Form 2025 will be submitted to CNO (Op-09BF), Wash., DC 20350-2000

Effective Date: 1 October 1986

Expiration Date for Obligational Purposes: 30 September 1987

Total to Date: \$4,315,000.00

Copy to:

NAVACCTGFINCEN (NAFC 63)

NAVREGFINCEN WASH DC (Code 621)

NSC Oakland

FLDSUBPACT (Codes 312 and 315)

Figure 1. Allotment/Suballotment Authorization (NAVCOMPT Form 372)

RESOURCE AUTHORIZATION

CDD (OP-098F)		Superintendent Naval Postgraduate School (Code 002) Monterey, CA 93943		62271 AAA No. 00228		<input type="checkbox"/> NEW OBLIGATION <input checked="" type="checkbox"/> REVERSAL NO. 30				
1751804		1180		R. B. KELLER Assistant for Field Support		30 September 1985				
ARTER	TOTAL OBJECT EXPENSES		CHANGES IN UNRECORDED OBLIGATIONS		TOTAL OBJECT OPERATING BUDGET		MILITARY PERSONNEL SUPPLIES		NEW OBLIGATIONAL AUTHORITY	
	INCREASE (DECREASE)	QUARTERLY AMOUNT	INCREASE (DECREASE)	QUARTERLY AMOUNT	INCREASE (DECREASE)	QUARTERLY AMOUNT	INCREASE (DECREASE)	QUARTERLY AMOUNT	INCREASE (DECREASE)	QUARTERLY AMOUNT
111	120	631	146	131	161	171	181	191	1100	1111
1001										
1000										
1110										
1010	53,845	33,638,134			53,845	33,638,134			53,845	33,638,134
1011	53,845	33,638,134			53,845	33,638,134			53,845	33,638,134

Increase of FY 85 funds in the amount of \$53,845 due to unrecorded obligations. Authorization for listed special projects were originally funded as of Local Funds. NAVPGSOL ltr 7303 Ser N-4(002) of 5 Dec 86 refers

- RG-84 Repair Roofs and Canopies, Bldg. 232 \$35,000 FLD SUPPACT 1412532 May 86 and 1914202 Nov 86 refer.
- CL6-79 Upgrade 4160 Volt "C" Feeder, Main Stations 9,500 FLD SUPPACT 2813452 Nov 86 refers.
- RL-83 Repair Heating and Ventilation, Bldg 235 9,345 FLD SUPPACT ltr Ser 20/1668 of 31 Oct 86 refers.

Accounting Month - January 1987

to:
DEFENSE WASH DC (Code 72)
Oakland
SUPPACT (Code 215)

RECEIVED
NAVPGSOL
1781 FEB - 5 A 856

Figure 2. Resource Authorization (NAVCOMPT Form 2168-1)

responsibility centers and given in the form of operating targets or OPTARS to their cost centers.

The primary source of funds to units is generally direct funds, as described above. However, responsibility centers may receive additional funds in the form of reimbursables. Reimbursables are a lateral flow of resources from other government activities, provided to finance the costs incurred by the performing activity to accomplish the requesting activity's work. Reimbursable funds are provided within the Navy by NAVCOMPT Form 2275 (Order for Work and Services). Military Interdepartmental Procurement Requests (MIPR) are used for requests from one service to another. Generally an organization can accept or decline the request based on its workload and commitments, unless a memorandum or agreement or an Interservice Support Agreement has been signed. Once accepted, the funds are added into the performing activity's obligational authority availability. (See Figures 3, 4, 5, 6)

B. SPENDING CONSTRAINTS ON MANAGEMENT

As previously mentioned, appropriations can be characterized as being for either investments or expenses, incrementally or fully funded, and of annual or multi-year duration. Managers must exercise care to ensure that obligations incurred for a given appropriation are in accordance with the mandates of Congress.

1. THIS ORDER MUST BE ACCEPTED ON A REASONABLE BASIS ONLY AND IS SUBJECT TO THE CONDITIONS LISTED ON THE REVERSE SIDE.										2. DOCUMENT NUMBER N0001486WRJ5065													
3. REFERENCE NUMBER N0001486AF00001		4. FUNDS EXPIRE ON 30 Sep 1986		5. WORK COMPLETION DATE 30 Sep 1986		6. DATE PREPARED 04 Nov 1985		7. AMENDMENT NO. BASIC															
8. FROM: Office of the Chief of Naval Research, Code 01123 Arlington, VA 22217-5000						9. FOR DETAILS CONTACT: Fred Silski NAFC Tel: 697-2080																	
10. TO: UIC 62271						11. MAIL BILLINGS TO: Office of the Chief of Naval Research, Code 01123 800 N. Quincy Street Arlington, VA 22217-5000																	
12. ACCOUNTING DATA TO BE CITED ON RESULTING BILLINGS																							
A. ACRN	B. APPROPRIATION	C. SUB-HEAD	D. OBJ. CLASS	E. BU. CONTROL	F. SA	G. AAA	H. TT	I. PAA	J. COST CODE	K. AMOUNT													
AA	1761319	WICE	000	RA9W5	0	068342	2D	000000	005330006020	\$45,000.00													
										TOTAL THIS DOCUMENT													
										\$45,000.00													
										CUMULATIVE TOTAL													
										\$45,000.00													
13. THIS ORDER IS ISSUED AS A <input type="checkbox"/> PROJECT ORDER <input checked="" type="checkbox"/> AN ECONOMY ACT ORDER AND IS TO BE ACCOMPLISHED ON A <input type="checkbox"/> FIXED PRICE <input checked="" type="checkbox"/> COST REIMBURSEMENT BASIS. WHEN THE FIRST BLOCK IS CHECKED, THIS ORDER IS PLACED IN ACCORDANCE WITH THE PROVISIONS OF 41 U.S. CODE 23 AND ODD DIRECTIVE 7220.1. THE FOLLOWING SUPPLEMENTARY ITEMS ON REVERSE ALSO APPLY AND ARE AN INTEGRAL PART OF THIS ORDER: 1, 2, 3, 4, 5, 7, 8, 9																							
14. DESCRIPTION OF WORK TO BE PERFORMED AND OTHER INSTRUCTIONS																							
<p>Funds provide for developing an approach to estimate cost relationships for each of the following system test and evaluation (ST&E) elements:</p> <table style="width:100%;"> <tr> <td>0 Wind Tunnel Models & Test.</td> <td>0 Miscellaneous Ground Test.</td> </tr> <tr> <td>0 Static Articles & Test.</td> <td>0 Support of Contractor Flight Test.</td> </tr> <tr> <td>0 Fatigue Articles & Test.</td> <td>0 Navy Technical Evaluation.</td> </tr> <tr> <td>0 Drop Articles & Test.</td> <td>0 Operational Evaluation</td> </tr> <tr> <td>0 Contractor Flight Test.</td> <td>0 Contractor Support of Navy Test.</td> </tr> <tr> <td>0 Flight Test Instrumentation.</td> <td></td> </tr> </table> <p>The principal investigators are Bob Patterson (NAVAIR) and Jack Lapatra (Code 54LP).</p> <p>CSS/CETS Restrictions: The funds provided on this funding document are <u>not</u> authorized for obligation on CSS/CETS contracts without specific written authorization from OCNR Comptroller (OCNR Code 011).</p> <div style="display: flex; justify-content: space-between;"> <div> <p>Distribution:</p> <p>3-Addressee</p> <p>2-Code 01123</p> <p>1-NAFC 1321</p> </div> <div> <p>Program Element: 62760N</p> <p>Research Project: R0533</p> <p>Type of Institution: 14</p> <p>86PR35099</p> </div> <div> <p>ACCEPTED: 11 Jan 86</p> <p>APPRN: 1761804.1180</p> <p>JOB ORDER: 622716RCNLP</p> <p>SEGT: CN60</p> <p>CAT: 4</p> <p>LMC: G1D1</p> </div> </div>												0 Wind Tunnel Models & Test.	0 Miscellaneous Ground Test.	0 Static Articles & Test.	0 Support of Contractor Flight Test.	0 Fatigue Articles & Test.	0 Navy Technical Evaluation.	0 Drop Articles & Test.	0 Operational Evaluation	0 Contractor Flight Test.	0 Contractor Support of Navy Test.	0 Flight Test Instrumentation.	
0 Wind Tunnel Models & Test.	0 Miscellaneous Ground Test.																						
0 Static Articles & Test.	0 Support of Contractor Flight Test.																						
0 Fatigue Articles & Test.	0 Navy Technical Evaluation.																						
0 Drop Articles & Test.	0 Operational Evaluation																						
0 Contractor Flight Test.	0 Contractor Support of Navy Test.																						
0 Flight Test Instrumentation.																							
15. I CERTIFY THAT THE FUNDS CITED ARE PROPERLY CHARGEABLE FOR THE WORK OR SERVICES REQUESTED.																							
AUTHORIZING OFFICIAL (NAME, TITLE AND SIGNATURE) <i>Mary Jane Miller</i> By direction of G.T. Maupin, Director Financial Mgmt./Comptroller, ONR																							
DATE 11/5/85																							

Figure 3. Order for Work and Services

MILITARY INTERDEPARTMENTAL PURCHASE REQUEST					PAGE 1 OF 1 PAGES	
2. FSC	3. CONTROL SYMBOL NO.	4. DATE PREPARED 17 Apr 86	5. MIPR NUMBER 86-03R		6. AMEND NO. 1	
7. TO: Naval Postgraduate School ATTN: Code 0021 Building 221, Room 202 Monterey, CA 93943-5100			8. FROM: (Agency, name, telephone number of originator) HQ USAREC ATTN: USARCPAE-MM Building 48c, 2d Floor Fort Sheridan, IL 60037-6090			
9. ITEMS <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT INCLUDED IN THE INTERSERVICE SUPPLY SUPPORT PROGRAM AND REQUIRED INTERSERVICE SCREENING <input type="checkbox"/> HAS <input type="checkbox"/> HAS NOT BEEN ACCOMPLISHED.						
ITEM NO.	DESCRIPTION (Federal stock number, nomenclature, specification and/or drawing No., etc.)	QTY	UNIT	ESTIMATED UNIT PRICE	ESTIMATED TOTAL PRICE	
	<p>Army Reserve Recruiting Market Study- Development of Reserve Micro-Level Geodemographic/Attitudinal Data Base</p> <p>1. The above study is coded under the research name of RCSTE which is funded by MIPR #86-03R (dated 9 December 1985, cost: \$275,000).</p> <p>2. This request amends the above study by changing the estimated completion date of 25 September 1987 to 31 December 1988. This amendment also allows NPS to contract up to 80 percent of this project to other research concerns.</p> <p>3. POC is Dr. George Thomas, Associate Professor, NPS, AUTOVON 878-2741.</p>					
10. SEE ATTACHED PAGES FOR DELIVERY SCHEDULES, PRESERVATION AND PACKAGING INSTRUCTIONS, SHIPPING INSTRUCTIONS AND INSTRUCTIONS FOR DISTRIBUTION OF CONTRACTS AND RELATED DOCUMENTS.					11. GRAND TOTAL	
12. TRANSPORTATION ALLOTMENT (Used if FOB Contractor's plant)			13. MAIL INVOICES TO (Payment will be made by) HQ USAREC, ATTN: USARCRM-A Ft Sheridan, IL 60037-6090 PAY OFFICE 000440			
14. FUNDS FOR PROCUREMENT ARE PROPERLY CHARGEABLE TO THE ALLOTMENTS SET FORTH BELOW, THE AVAILABLE BALANCES OF WHICH ARE SUFFICIENT TO COVER THE ESTIMATED TOTAL PRICE.						
ACCM	APPROPRIATION	LIMIT / SUPP	SUPPLEMENTAL ACCOUNTING CLASSIFICATION		ACCTG STA	AMOUNT
216	2080		38-8307 P530000.2542 P538991.10000 KKUM		S11074	

Figure 4. Military Interdepartmental
Procurement Request (MIPR)

ACCEPTANCE OF MIPR					
1. TO (Requiring Activity Address) (Include ZIP Code) HQ USAREC ATTN: USAREC-MM BUILDING 48C, 2d Floor Fort Sheridan, IL 60037-6090			2. MIPR NUMBER 86-03R		3. AMENDMENT NO. 1
			4. DATE (MIPR Signature Date)		5. AMOUNT (As Listed on the MIPR)
6. The MIPR identified above is accepted and the items requested will be provided as follows: (Check as Applicable)					
a. <input checked="" type="checkbox"/> ALL ITEMS WILL BE PROVIDED THROUGH REIMBURSEMENT (Category I)					
b. <input type="checkbox"/> ALL ITEMS WILL BE PROCURED BY THE DIRECT CITATION OF FUNDS (Category II)					
c. <input type="checkbox"/> ITEMS WILL BE PROVIDED BY BOTH CATEGORY I AND CATEGORY II AS INDICATED BELOW					
d. <input type="checkbox"/> THIS ACCEPTANCE, FOR CATEGORY I ITEMS, IS QUALIFIED BECAUSE OF ANTICIPATED CONTINGENCIES AS TO FINAL PRICE. CHANGES IN THIS ACCEPTANCE FIGURE WILL BE FURNISHED PERIODICALLY UPON DETERMINATION OF DEFINITIZED PRICES, BUT PRIOR TO SUBMISSION OF BILLINGS. -					
7. <input type="checkbox"/> MIPR ITEM NUMBER(S) IDENTIFIED IN BLOCK 13, "REMARKS" IS NOT ACCEPTED (IS REJECTED) FOR THE REASONS INDICATED.					
8. TO BE PROVIDED THROUGH REIMBURSEMENT CATEGORY I			9. TO BE PROCURED BY DIRECT CITATION OF FUNDS CATEGORY II		
ITEM NO. a	QUANTITY b	ESTIMATED PRICE c	ITEM NO. a	QUANTITY b	ESTIMATED PRICE c
	ACCEPTED: APPRN: JOB ORDER: SEGT: CAT: LMC:	12 May 1986 1761804.1180 622716RCSTE CS60 4 G1D1			
4. TOTAL ESTIMATED PRICE			4. TOTAL ESTIMATED PRICE		
10. ANTICIPATED DATE OF OBLIGATION FOR CATEGORY II ITEMS			11. GRAND TOTAL ESTIMATED PRICE OF ALL ITEMS		
12. FUNDS DATA (Check if Applicable)					
a. <input type="checkbox"/> ADDITIONAL FUNDS IN THE AMOUNT OF \$ _____ ARE REQUIRED (See justification in Block 13)					
b. <input type="checkbox"/> FUNDS IN THE AMOUNT OF \$ _____ ARE NOT REQUIRED AND MAY BE WITHDRAWN					
13. REMARKS <div style="text-align: center; padding-top: 20px;"> 216 2080 38-8307 P530000.2542 P538991.1U000 KKUM S11074 </div>					
14. ACCEPTING ACTIVITY (Complete Address) SUPERINTENDENT (CODE 002)			15. TYPEO NAME AND TITLE OF AUTHORIZED OFFICIAL LINDA QUIRK, SUPERVISORY BUDGET ANALYST		

Figure 5. Acceptance of MIPR

1. THIS REQUEST MUST BE ACCEPTED ON A DIRECT CITATION BASIS ONLY AND IS SUBJECT TO THE CONDITIONS LISTED ON THE REVERSE SIDE.						2. DOCUMENT NUMBER N6227187RC70048	
3. REFERENCE NUMBER		4. FUNDS EXPIRATION 9/30/87		5. DMS RATING		6. PRIORITY	
7. DATE REQUIRED		8. AMENDMENT NO. basic		9. FROM Superintendent (Code: 002) Naval Postgraduate School Monterey, CA 93943			
10. FOR DETAILS CONTACT: M. Bass AV878-3139				11. TO: <input type="checkbox"/> Office of Naval Research 800 N. Quincy Street Arlington, VA 22217-5000 ATTN: Maryann Cook, Code 1511A			
12. MAIL INVOICES TO: COMPTON							
13. ACCOUNTING DATA TO BE CITED ON RESULTING CONTRACTS							
A. ACRN	B. APPROPRIATION	C. SUB-HEAD	D. OBJ. CLASS	E. BU. CONTROL	F. SA	G. AAA	H. TT
AA	1771804	1180	000	62271	0	000228	2D
						ORCA71	PF7RC7004800
						12/27/81	
14. AMOUNTS WILL NOT BE EXCEEDED IN THE OBLIGATION DOCUMENT WITHOUT PRIOR WRITTEN APPROVAL FROM THE ISSUER.						TOTAL THIS DOCUMENT	
						CUMULATIVE TOTAL	
						75,000.00	
15. PROCUREMENT BY CONTRACT OF THE FOLLOWING ITEMS IS REQUESTED							
THESE ITEMS <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT INCLUDED IN THE INTERSERVICE SUPPLY SUPPORT PROGRAM AND							
AND NO REQUISITION REQUIRED, INTERSERVICE SCREENING: <input type="checkbox"/> HAS <input type="checkbox"/> HAS NOT BEEN ACCOMPLISHED							
16. SEE ATTACHED PAGES FOR DELIVERY SCHEDULES, PRESERVATION AND PACKAGING INSTRUCTIONS, SHIPPING INSTRUCTIONS AND INSTRUCTIONS FOR DISTRIBUTION OF CONTRACTS AND RELATED DOCUMENTS.							
						I. GRAND TOTAL	
						75,000.00	
17. TRANSPORTATION ALLOTMENT (Used if FOB Contractor's plant)							
18. I CERTIFY THAT THE FUNDS CITED ARE PROPERLY CHARGEABLE FOR ITEMS REQUESTED.				AUTHORIZING/OFFICIAL (NAME, TITLE AND SIGNATURE) Linda Quirk LINDA QUIRK, Supervisory Fiscal Analyst			
				DATE 12/19/86			

Figure 6. Request for Contractual Procurement

Duration refers to the amount of time the appropriation is available for obligation by the agency before it expires. Appropriations must be used only during their prescribed lifetime. Following expiration, no additional funds may be obligated. However, existing obligations may be liquidated during the two year expenditure availability period before the appropriation lapses. Once lapsed, the monies are returned to the Treasury by the agency and any further unliquidated obligations are tracked by the Treasury rather than the department concerned.

Additionally, funds must be spent only for the purpose for which Congress appropriated them. Spending an expense-type appropriation such as O&M,N for an investment item or the reverse is a violation of the Anti-deficiency Act. When discovered, this must be reported and corrective action taken so that the proper funds are used.

Lastly, funds must not be overobligated. The Anti-deficiency Act prohibits the obligation of funds in excess of the authorized amount, details reporting methods and punishment of violations, forbids contracting or obligating in anticipation of receiving an appropriation, and requires that appropriations be apportioned. An overobligation violation of the Antideficiency Act can result in administrative disciplinary action or, if done deliberately, a \$5000 criminal fine, imprisonment for up to two years or both

being awarded to the Commanding Officer of the responsibility center.

" Similarly, reimbursable funds must be spent in accordance with the requirements of the appropriation from which they were originally taken. Hence, for example, reimbursable money which was initially directly funded as O&M,N cannot be used for investment items and will expire at the end of the fiscal year. Management must obligate these funds accordingly.

Separate reimbursable job orders, as well as the OPBUD and each allotment held, are subject to the provisions of the Antideficiency Act. Careful balances of obligations must be maintained and provisions made by management for price changes. in order to guard against violations. OPBUD's are constrained in that they are promulgated via 2168-1 on a quarterly basis. Managers are aware of the annual projected total but are required to spend only the amounts authorized for that particular quarter. "Fences" and "ceilings" are also used to ensure that maximum or minimum amounts are spent in certain areas of higher authority interest, such as Maintenance of Real Property.

Lastly, managers are constrained by the sponsor's directives in the area of reimbursable job orders. Reimbursable funds are to be used only for the purpose specified in the agreement. Accountability is therefore kept at the

individual sponsor level and kept separate from the performing activity's OPBUD. [Ref. 5:p. 1] Costs accrued are billed to the sponsor; the intent is to cover the expenses of the performing activity without generating a profit for it.

C. FEDERAL ACCOUNTING STANDARDS AND PRINCIPLES

Due to the extreme complexity and diversity of the Federal Government there is no single "proper" accounting system. Rather, each department or agency is required to develop an appropriate system for its individual purposes. GAO is tasked with reviewing and approving these systems, thereby ensuring compliance with GAO-prescribed principles and standards.

1. Accounting Standards.

Title 11 of the GAO's Policy and Procedures Manual for Guidance of Federal Agencies (Accounting Principles and Standards) [Ref. 3:p. 2-9--2-13] states that Agency accounting system design must reflect the following standards:

a. Statutory Requirements.

Agencies must follow all applicable laws relating to agency accounting, administration of funds, and appropriations for which it is responsible. Each fund and appropriation must be used only for lawful purposes. Accounting systems must demonstrate compliance to the maximum practicable extent.

b. Management and Congressional Needs.

A system must meet all the information needs of OMB, the Treasury, Congress, internal management and, in the case of the Department of the Navy (DoN), those of other DoD components. It must be a basis for control of funds, property, and other assets and must allow the agency to develop and report costs of performance by major organizational segments, budget activities, and program structures.

c. Usefulness of Financial Data.

Data must be useful to the officials that need them, the President, other agencies, the public, and Congress. Useful information is defined as being relevant, timely, reliable, unbiased, clear, concise, necessary, and developed through the consistent application of accounting standards from one accounting period to subsequent ones and over all DoD components.

d. Accounting for Responsibilities.

For maximum usefulness, the system should allow ready reporting on areas of responsibility or activity. Past performance should be able to be compared with planned programs to ascertain consistency and ensure it has been within financial limits.

e. Consistency of Programming, Budgeting, Reporting and Accounting Classifications.

Data which are produced using consistent classifications for programming, budgeting, reporting and accounting and are synchronized with the agency's organizational structure will be of maximum use in supporting internal operating budgets and budgets presented to Congress.

f. Technical Requirements.

The system will have complete and reliable records of the accounting entity's resources and operations. Funds, property, assets, liabilities and obligations, receipts and revenues, expenditures, disbursements and costs will be covered. Records will be primarily in monetary terms, but other quantitative data as necessary or appropriate (such as manhours required to produce an item) will be maintained for planning, control and general management purposes. Transactions shall be supportable with documents for audit purposes and recorded so that originating documents can be traced to summary records and financial reports. Interagency and interfund transactions are to be identified in statements and records separately to permit proper treatment in consolidated financial reports. Transactions in agency records should not be recopied, even in summary, in higher level records. Financial reports of subordinates should be used by higher levels to compile summary reports. There should, however, be technical

supervision and interlocking relationships between accounting offices to ensure that consolidated reports are in fact correct.

g. Qualified Personnel.

Accounting personnel and leadership should be highly competent.

h. Truthfulness and Honesty.

Transactions shall not be recorded in such a way that false, misleading or materially inaccurate information is produced. Transactions must be recorded in a timely fashion and reflect actual events.

i. Other standards.

Simplicity: Procedures must be simple and readily understandable. Records that are unnecessary or insignificant should not be kept.

Reliability and Materiality: Transactions shall be recorded and reported on during the period they occurred. Materiality and relative significance of the items involved, however, should determine the degree of precision used to make estimates and allocate costs and income when required. Excessive meticulousness without materially more reliable results or other benefits is to be avoided.

Necessity for Updating Accounting Systems: Systems should be periodically reviewed as organizational changes, shifting program emphasis, legislative revisions

and technological changes occur. This will help ensure that information remains useful for financial control and promote efficiency and economy in operations.

2. Application of Accounting Principles.

Title 11 [Ref. 4:p. 91-94] also specifies numerous accounting principles which must be followed. The actual principles will not be included in the body of this thesis; however, reference 3 (pages 2-9--2-61) describes them fully. The areas to which those principles apply are summarized below:

a. Accrual Accounting.

Accounts must be maintained on the accrual basis, which will be discussed later in this chapter.

b. Fund Control.

There must be management controls over the use of fund authorizations ensuring that funds are used only for authorized purposes, that they are used economically and efficiently, that obligations and expenditures do not surpass authorized amounts, and that obligation/expenditure of funds is not reserved or deferred without the knowledge and approval of Congress.

c. Account Structure.

Accounts must be defined by the legal authority, responsibilities, and reporting requirements of the agency. Accounting entities must have separate groups of accounts

for themselves individually. An accounting entity may consist of part or all of an agency (such as DoN or NAVPGSCOL), or one or more legally established funds (such as O&M,N or OPN).

d. Asset Control.

Procedures must assure that assets are used correctly and for authorized purposes and remain in governmental possession unless otherwise authorized.

e. Accounting for Liabilities.

Liabilities must represent amounts owed, shall be measured and recorded during the period they occur, and shall be removed from accounts when liquidated. Liabilities must be recorded and reported, whether or not funds are available or authorized for their liquidation. All transactions must be reflected in the accounts as of the end of a given accounting period.

Separate accounts must be maintained by major category to enable full and clear disclosure to be made. The major categories are current, long-term and unfunded liabilities. Current liabilities are those due within a period of less than one year and are payable out of current assets, whereas long-term liabilities refer to those which are not due for payment for more than a year. Unfunded liabilities are liabilities for which an obligation to pay

will not be incurred until a later time, such as accrued annual leave. [Ref. 6:p. 41-1]

f. Accounting for the Federal Investment.

The U.S. Government equity in an accounting entity is its share of ownership of that entity's assets. This is the residual value of the assets after the liabilities and results of operations are considered. [Ref. 6:p. 51-1] The major elements of the Federal Investment shall be separately accounted for and reflected in financial reports as follows:

- 1) Additions, such as appropriations or net income from operations.
- 2) Deductions, such as funds turned back to the Treasury or a net loss from operations.

g. Cost Information.

Cost information must be produced and reported, enabling the Agency, Treasury, OMB and Congress to design and approve financial plans, make comparisons, and control costs.

h. Financial Reporting.

Reports will be prepared as often as required for internal and external users, so that important facts about operations and activities are disclosed.

i. Central Accounting and Reporting.

The Treasury will keep a system of central accounts and prepare financial reports for the Federal Government as a whole. These will also comply with GAO's principles and standards of accounting, as related in this chapter.

D. DoN ACCOUNTING SYSTEMS

Prior to today's era of computerization, government records were laboriously kept in manual ledgers. However,

Continual refinements of electronic data processing equipment and computer programming techniques have permitted the development of innovative and efficient financial systems. In accounting such systems generally use a transaction or basic data element or building block concept by which data are uniformly collected, stored, aggregated and generated or reported. . .to a variety of users. [Ref. 4:p. 124]

The "building blocks" or classification codes utilized by DoN allow transactions to be encoded for data entry according to the

- 1) Purpose for which resources were employed and
- 2) Location, i.e., who or what organization within the activity was involved in spending the funds.
[Ref. 7:p. D-9]

1. Accounting Classification Codes Indicating Spending Purpose Codes.

Accounting Classification Codes Indicating Spending Purpose Codes which indicate the purpose for which resources were used are listed below:

a. Budget Activity.

There are ten broad areas of support and missions called major programs in the Five Year Defense Plan (FYDP). These programs are:

- 1) Strategic Forces
- 2) General Purpose Forces
- 3) Intelligence and Communications
- 4) Airlift and Sealift
- 5) Guard and Reserve Forces
- 6) Research and Development
- 7) General Supply and Maintenance
- 8) Training, Medical and Other General Personnel Activities
- 9) Administrative and Associated Activities
- 10) Support of Other Nations

Some appropriations provide resources to several different programs; others, to only one. Budget activities are that part of an appropriation that relate to a given program.

[Ref. 7:p. A-7--8]

b. Program Element.

A program element is a more detailed breakdown of budget activities, which groups the forces, manpower and costs of a project, function, organization, or group of similar organizations. An example of a program element falling under the strategic forces budget activity would be the Trident program. [Ref. 7:p. A-7--8]

c. Unit Identification Code (UIC).

A UIC is the general identification code used to identify a DoN unit for all purposes, rather than just financial. It is cited in the bureau control number block in the accounting classification code. A UIC is generally related to only one program (budget activity) and program element. The AAA uses the UIC to identify the activity and to accumulate costs. 62271, for example, is the UIC signifying NAVPGSCOL. [Ref. 8:p. 2-4--2-2]

d. Activity Group/Subactivity Group Codes (AG/SAG).

An AG is a two digit alpha-numeric code which breaks out costs by the principal functional area. The AG corresponds to a major function identified by a claimant in a budget decision and thererore aggregates to a decision package in the budget. A SAG is a two digit alpha-alpha code which further breaks down the AG. AG/SAG's comprise a classification structure that allows programming, budgeting and accounting to be integrated. AG's are used by claimants and those senior in the fiscal chain of command, SAG's by responsibility centers and lower for management purposes. An example of an AG/SAG would be M8MZ, Professional Development Education; Graduate Education, Fully Funded, Full Time. [Ref. 9:p. 17]

e. Functional/Subfunctional Category Codes (FC/SFC).

A FC/SFC is a two digit alpha-numeric code used to collect information concerning expenses and gross adjusted obligations which is needed for management purposes. FC/SFC's are used to accumulate information in circumstances where it is necessary to know the cost of a particular function, as listed below:

- 1) To comply with Congressional restrictions or to meet the needs of outside parties.
- 2) To assist in deciding the amount of an authorization that should be given to a specific operating activity.
- 3) To find a control total which is tied to an underlying cost accounting system which is necessary to manage the function.
- 4) To help make comparisons and special analyses of costs.

Subfunctional codes are used to supplement functional codes since there is an insufficient number of functional codes for management purposes. Continuing the prior research-related example, A8 is the FC/SFC for Mission, Graduate Education. [Ref. 9:pp. 2-5]

f. Cost Account Codes (CAC).

CAC's describe the FC/SFC in greater detail, as, for example, the CAC 5241 for research reimbursables. CAC's are used to account for the input of resources, such as cost or manhours, and the resulting output or work units produced. This allows calculations or production rates for functions with measurable output units per man hour. The

basic building blocks of the budget, cost account codes permit budgets that reflect the anticipated cost of a given level of output. [Ref. 7:pp. C-11--C-13]

g. Expense Element (EE).

An EE is a one-digit alpha code describing the types of expenses associated with each cost accounting code. U, for example, is used for civilian personnel labor costs. [Ref. 8:pp. 2-7--2-8]

2. Accounting Classification Codes Indicating Spending Location.

Codes that are used to indicate the location of the spending are defined below:

a. Responsibility Center.

NAVPGSCOL is an example of a responsibility center. It is identified by its UIC for financial data purposes.

b. Cost Center.

A cost center is a subdivision of a responsibility center, for which identification of costs is desired and cost control can be achieved through one supervisor. An example of a cost center at NAVPGSCOL would be H1, or the Dean of Science and Engineering.

c. Local Management Code (LMC).

A LMC is a further breakdown of the cost center by purposes, organization, or both. An example of a LMC would be H1H1, or Research Administration.

3. Applicable DoN Accounting Systems

a. Obligational (Appropriation) Accounting.

Fund control was previously emphasized as an important aspect of federal accounting. The purpose of obligational accounting is to report the unit's progress in spending resources by tracking commitments, obligations and expenditures. Obligational accounting is performed for all allotments as well as for a responsibility center's OPBUD.

A commitment is an administrative reservation of funds based upon firm procurement directives, orders, requisitions, authorizations to issue travel orders or requests which permit the receiver to create obligations without further contact with the official who certified the availability of funds. They are also called reservations or contingent obligations. Typically, commitments are used in the procurement area, rather than for the relatively minor expenses handled under O&M,N. Conversely, an obligation is a legal reservation of funds, in which there is a duty to make a future payment. Placing an order or letting a contract would entail an obligation.

The actual disbursement of funds to liquidate an obligation is called an expenditure. This consists of a charge against funds available, which charge is supported by an approved voucher, claim or document.

Obligational accounting permits management to determine the unobligated or uncommitted balance of a particular fund authorization in the following manner [Ref. 7:p. D-71]:

$A + B = C$	where: A = Outstanding Obligations
$C + D = E$	B = Expenditures To Date
$F - C = G$	C = Cumulative Obligations
$F - E = H$	D = Outstanding Commitments
	E = Cumulative Commitments
	F = Original Fund Authorization
	G = Unobligated Balance
	H = Uncommitted Balance

The focus, therefore, in obligational accounting is on the balance of appropriated funds obligated to date versus those available for obligation and on the actual disbursement of funds to liquidate obligations. The source fiscal year of the funds being obligated is the time frame for this system. An activity will typically be tracking at least three fiscal years simultaneously, i.e., the obligational and expenditure availability periods of annual appropriations. Multi-year appropriations, of course, require additional tracking.

b. Accrual Accounting.

Accrual accounting is a method of accounting concerned with the timing and recognition of expenses and revenues. Hence, the focus is on expenses, or the costs of operating and maintaining an activity on a day-to-day basis. Here, the reference time frame is the fiscal year in which the item being accounted for is consumed. In the case of the RMS system (to be discussed later in this chapter) consumption is assumed to occur at the time the item is received. Other goods are purchased under revolving funds, such as the Navy Stock Fund, and are considered assets until they are expensed (consumed) by operations.

Dollar values recorded in the obligational accounting system will generally not agree with the accrual system due to

- (1) differences between the source and the consumption fiscal years and
- (2) inclusion of expenses that were not initially recorded as obligations, such as centrally obligated military personnel costs and capital equipment purchased on behalf of the local command from investment appropriations. [Ref. 7:p. D-8]

The interaction of the obligational and accrual systems is illustrated pictorially in Figure 7. The significance of the various events is discussed below. Line 1) in Figure 7 shows the events as they occur in the

obligational accounting system, while line 2) shows the events from the perspective of the accrual accounting system.

Timeline:

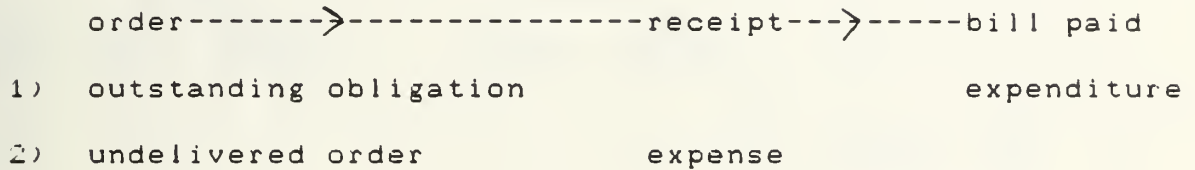


Figure 7

Placing an order can be considered an 1) outstanding obligation (obligational accounting system) or an 2) undelivered order (accrual accounting system). Receipt of the ordered item is considered to be an expense in the accrual accounting system, but it is not recognized in the obligational system. On the other hand, paying the bill for the item is considered to be an expenditure in the obligational accounting system, but it is not recognized in the accrual system.

c. Cost Accounting

Cost accounting may draw values from either the obligational accounting or accrual accounting systems. The data are then presented in terms of two frames of reference, the location of the spending (cost center, LMC) and the purpose of spending (AG/SAG, FC/SFC, CAC, EE). By examining the data in matrix format, managers can track cumulative

obligations or expenses to date. Conceptually, this is illustrated in figure 8.

		AG/SAG								<u>TOTAL</u>
		FC/SFC				FC/SFC				
		CAC		CAC		CAC		CAC		
		EE	EE	EE	EE	EE	EE	EE	EE	
cost center	LMC									
	LMC									
cost center	LMC									
	LMC									
TOTAL		-----								

Figure 8

Thus, data can be analyzed in terms of what part of an activity spent the resources in question (shown in figure 8 on the vertical axis), by summing the figures across the page. Data also reflect for whom the resources were spent (such as reimbursable customers) or what was obtained (tools, electricity, etc.), as shown by the horizontal axis of this matrix. These figures can be totaled down the page. [Ref. 7:p. C-11]

Matrix display of data is most commonly seen in actual usage in the RMS accounting system on NAVCOMPT Form 2179-1. (See Figure 9.) This form is used for budget submission to higher authority (when prepared for the entire responsibility center). NAVCOMPT Form 2179-1 can also be employed locally for smaller organizational units such as cost centers.

[illegible]

Figure 9. Activity Budget Apportionment Submission (NAVCOMPT Form 21/9-1)

The format used on NAVCOMPT Form 2179-1 is slightly different from the matrix shown in Figure 8. NAVCOMPT Form 2179-1 arrays EE codes on the vertical axis, with the AG/SAG and FC/SFC on the horizontal axis. The form is prepared with data aggregated for the entire responsibility center or smaller units as required. [Ref. 7:p. D-9]

d. Reimbursable Accounting

As previously discussed, an activity may receive a lateral input of resources from another activity to perform some service. Once the work order has been accepted, the performing activity increases its available obligational authority by the amount of the reimbursable.

Assets of the performing activity are initially consumed. Costs are accumulated by the AAA, using the RMS system (see subsection e. below) and are subsequently billed to the requesting activity. Proper use of cost accounting codes is critical, since failure to do so will result in the costs being absorbed by the performing activity's OPBUD, to the detriment of its programs.

e. Resource Management System (RMS).

RMS is used to account for the resources of an activity, i.e., its military and civilian personnel, material on hand or on order and the entitlement to procure or use material, utilities and services required for the performance of the basic mission of the responsibility center

and work provided for others. Reimbursables are tracked since they are part of the available obligational authority of the activity.

RMS is actually a combination of the three methods of accounting previously mentioned, accrual, cost and obligational. However, consumption and, hence, expenses are assumed to occur at the time of an item's receipt.

Designed to integrate the budgeting, accounting and reporting of expense type asset consumption, such as civilian pay and supplies, RMS is supported by the Uniform Management Reporting System (UMR). This will be discussed further in later chapters of this thesis. An excellent coverage, for those interested in exploring the subject of RMS in depth, is found in reference 9, pages 1-75.

E. ACCOUNTING ROLES OF THE AAA AND THE RESPONSIBILITY CENTER

Historically, the DoN has not had an integrated system for accounting and disbursements. Rather, these duties were divided between the Navy Regional Finance Centers (NRFC) and the Authorized Accounting Activities (AAA).

AAA's were charged by NAVCOMPT with the official accounting for their own and/or other shore activities' funds, specifically, allotments and/or operating budgets. AAA's maintained the responsibility center's financial database and provided periodic reports to the activity and claimants.

The benefits realized were due to centralization of the accounting function and expertise and the internal controls imposed by accounts being kept by an outside activity.

NRFC's maintained a similar financial database, liquidating obligations as they received billings from the AAA and invoices from the activity. They then submitted vouchers to reconcile with the AAA's records. The vast quantities of paper flow, loss of timeliness due to mailing delays, inaccuracies due to keypunch error and lack of audit trail as a result of lost documents made this a less than ideal system.

The Navy is gradually converting to a system known as IDA, or Integrated Disbursing and Accounting, wherein the AAA's are combining with the NRFC's to become Financial Information Processing Centers (FIPC). FIPC's will perform both functions concurrently. The intent is to improve the flow of financial information, maintain account reconciliation and better distribute hardcopy documentation.

IDA is scheduled to be totally on line by 1988 and in fact IDA II-B is presently in use between NAVPGSCOL and its AAA, NSC Oakland. Thus the official accounting for NAVPGSCOL is done by NSC Oakland on the basis of the data which are entered online by NAVPGSCOL Comptroller office personnel. This process will be addressed in greater detail in a later chapter.

Additionally, responsibility centers will typically maintain some form of memorandum accounting records. Memorandum accounts are a system of accounts which are locally developed and used by management to assist in tracking funds. While not the "official" records, they are recognized by NAVCOMPT as a prudent way of keeping a current balance on uncommitted funds pending the receipt of periodic reports from the AAA.

Memorandum accounts should, at a minimum, contain a file of all the documents that were initiated prior to the close of the last reporting period and a separate file of all documents subsequently initiated. By comparing the information with the last AAA report to the files of all documents submitted since that time, a true remaining balance of a particular fund authorization should be obtained. While it is recognized that circumstances may demand greater detail to meet the needs of managers, the benefits of any memorandum records in excess of this minimum standard should be weighed carefully against the costs. [Ref. 10:pp. 9-75]

Specific memorandum accounts and the personnel maintaining them at NAVPGSCOL will be discussed at a later point in this thesis.

F. INTERNAL CONTROLS, INTERNAL REVIEW AND AUDIT PROGRAMS

OMB Circular A-123 mandates that all services develop internal control programs and institute internal review

programs to evaluate the internal controls. [Ref. 11:pp. 46-47] Additionally, the Federal Manager's Financial Integrity Act of 1982 requires an agency head to advise Congress and the President annually of its status in this area. [Ref. 11:pp. 46-47]

GAO has stated that internal control systems will, within reason, ensure the following objectives are met:

1. Obligations and costs comply with applicable law.
2. All assets are safeguarded against waste, loss, unauthorized use, and misappropriation.
3. Revenues and expenditures applicable to agency operations are recorded and accounted for properly so that accounts and reliable financial and statistical reports may be prepared and accountability of the assets may be maintained [Ref. 12:p. 121].

In short, agencies are required to install control systems that will better enable them to carry out their accounting responsibilities as outlined in sections C. and D. of this chapter.

The general internal control standards [Ref. 12:p. 123] provide that:

1. Internal control systems shall reasonably assure that their objectives will be accomplished.
2. A positive and supportive attitude towards internal controls will be maintained by all personnel at all times.
3. Managers and employees will maintain an appropriate level of competence and integrity to accomplish their duties and understand the importance of developing and using good internal controls.

4. Control objectives will be developed for all agencies. They will be logical, applicable and complete within reason.
5. Techniques used will effectively and efficiently meet the internal control objectives.

Specific standards are as follows: [Ref. 12:p. 123-4]

1. Control systems, transactions and significant events will be clearly documented, and the documentation will be easily obtainable for review.
2. Significant events and transactions will be properly classified and recorded in a timely fashion.
3. Further, they will be executed and authorized only by persons who are acting in accordance with their authority.
4. Responsibilities and key duties regarding the authorization, processing, recording and reviewing of transactions will be separated between various individuals.
5. Qualified, continuous supervision will be used to ensure internal control objectives are reached.
6. Only authorized personnel will have access to records, and accountability for custody and use of resources shall be ensured. Periodically, the resources shall be compared with the records to ensure agreement, such review to be determined by the degree of vulnerability of the item.
7. Lastly, managers are to evaluate any audit findings promptly and ensure that proper actions are taken, within reasonable and set time frames, to correct any deficiencies noted.

Internal controls are a management function and should be devised by the managers concerned after they have conducted vulnerability assessments to ascertain potentially weak areas. A command, having instituted internal controls, is not then permitted simply to rest. An internal review program is also required, in which internal auditors will

evaluate the degree of effectiveness and extent of compliance. Finally, a command will be periodically audited by external audit staff. This subject as it specifically relates to NAVPGSCOL will be addressed in later chapters of this thesis.

III. PRESENT ACCOUNTING PRACTICES FOR NAVPGSCOL RESEARCH MONIES

In order to fully understand the way in which research monies are accounted for at NAVPGSCOL, it is necessary to review the inner workings and interrelationships of at least the four primary groups who keep accounting records. NSC Oakland, as NAVPGSCOL's AAA, maintains the official accounts, while the separate departments or academic groups, Research Administration Office (RAO) and Comptroller's Office do memorandum accounting. Some individual principal investigators (PI's) also maintain some form of checkbook style records, using the RAO report as a basis.

The purpose of this chapter is to address the practices of the entities cited above, noting the internal control and internal review programs which accompany them. It will:

- A) Review the way in which NAVPGSCOL obtains and budgets research money,
- b) Illustrate the administrative flow of information by tracing documents through the various systems and examining the reports generated.
- C) Discuss the specific accounts kept by AAA, the Comptroller's Office, RAO, Departments and Academic Groups and PI's, and
- D) Describe briefly weaknesses in the internal control and internal review programs.

A. THE RESEARCH PROJECT BUDGETING AND FUNDING PROCESS

As previously noted, NAVPGSCOL receives in excess of \$16 million annually for research, funded through reimbursables from approximately fifty different sponsors. Approximately \$1.7 million of this money is provided in a block to the school by the Office of Naval Research (ONR) and the Office of Naval Technology (ONT). These funds are referred to as the Foundation Funds and are managed separately by the Director of Research Administration and the NAVPGSCOL Research Council.

Uniform procedures are used to budget, obligate and account for both Foundation Funds and other research reimbursables. Likewise, the formats of Foundation and other research proposals are the same. However, there are differences in the submittal and reviewing processes.

1. Overview

Most reimbursables between military activities are obtained because one activity requests that a good or service be provided by another. Research reimbursables are unique in that NAVPGSCOL, specifically the PI's, must actively solicit funding from sponsors via proposals.

Successful pursuit of research funding is critical, both to the school and to the individual faculty members. NAVPGSCOL must consistently maintain sufficient funding to support the quality of research required for academic

excellence in this institution and to attract high caliber faculty.

Similarly, professors must conduct research and publish if they are to continue to advance in their fields. Hired on a ten-month basis, professors are expected to teach for at most three quarters (salary paid by O&M,N funds). Permanent tenure track teaching faculty may conduct research for at most half of this period (salary paid by their research reimbursable contract). During the remaining inter-sessional months additional research funds may be obtained, or the professor may go on leave without pay.

The current funding situation has a distinct entrepreneurial flavor. Individual faculty members tailor their proposals to fit the needs of the activity from which they are soliciting funds. PI's rely on their professional reputation, past performance, and upon personal contacts to obtain funding. Since new professors don't have an established reputation or the personal contacts, they have high priority on Foundation funds during their first two years at NAVPGSCOL if they choose to submit their proposals to the Research Council rather than to an external activity. Eventually, sponsors will become familiar with the various faculty members who do research in fields related to that activity's mission and associate work as much with that individual PI as with NAVPGSCOL. In this sense, the funding

environment is more similar to that of a university than a government laboratory.

2. Effects of the Local Budgeting Process on Research

a. End Strength and Management-to-Payroll Considerations.

Commands are assigned a specific end strength number for a given fiscal year. End strength refers to the number of civilian personnel that are authorized to be on the payroll.

Additionally, commands are required to "manage to payroll". A command is assigned a monetary figure that cannot be exceeded in terms of the total civilian payroll. Hence, the command is given the option of having a smaller number of more senior personnel or a greater number of junior personnel.

As discussed, both faculty members and NAVPGSCOL as a command are given incentives to conduct research. Educating Naval Officers is the primary mission of the school, and a high quality research program is an essential element of graduate education. However, as the research program must be conducted with teaching requirements in mind, and the manpower resources available for teaching and research are limited, the quantity of research which can be done is effectively "capped" both by labor and by budget considerations.

b. Labor Budgeting for Faculty.

In the academic planning process, the faculty budget is composed of three documents, the budget page, the transfer notes and billet pages. The budget is based on the number of civilian teaching personnel, the number of classes that must be taught and the number of theses to be advised; the total cost of required administrative items such as department administration, student advising and the continuing education program; and the amount of O&M,N funds which have been budgeted for civilian faculty salary costs. Each academic department is assigned a certain number of manyears, faculty member billets and a teaching load. The final allocation of the available budget is then determined by the Division Dean.

A department may have fewer manyears budgeted than it has faculty billets. If this is the case, then budgeted O&M,N funds will not be sufficient to pay the complete salaries of all faculty members on staff. Research funding must be obtained to fill this gap. So, for example, if a department had 1 1/2 teaching manyears budgeted for two billets, 1/2 manyear of research would be required in addition to the 1 1/2 manyears of teaching to balance the budget.

If the teaching budget is not adequate, it will force the department not to teach certain courses or cause

faculty to teach an overload. Alternatively, the Division Dean may choose to transfer many years to the department's budget, if available.

Prior to commencement of the fiscal year, department chairmen submit labor budgets showing how their particular personnel will be utilized. From this, the Faculty Employment Scheduler generates the Faculty Employment Schedule for the entire school. The role of the Faculty Employment Schedule in accounting for research will be addressed in Section B of this chapter. [Ref. 13]

c. Labor Budgeting for Non-Faculty Direct Research Support Personnel.

The nature of the research done by certain departments requires that support personnel such as research assistants or technicians be hired. These individuals may be hired for and paid under a single research project. However, it is more common for a support person to work on several different research contracts, simultaneously or consecutively. A given research contract may cite the services of a technician for six person-months, with two other research contracts charging three person-months each, for example. In such cases, the department must carefully budget for the individual's salary, ensuring that it is both uninterrupted and assigned to the appropriate cost codes. Planning of this type is done at the department level.

An employment schedule is prepared every two weeks by the Research Administration Office (RAO), reflecting the actual employment of research reimbursable support personnel by various departments. The role of this employment schedule in accounting for research will be addressed in section B. of this chapter. [Ref. 20, 21, 22]

d. Use of Departmental Budgets and Surveys to Determine the Indirect Costs Charge.

In addition to the direct costs incurred by research projects, there are certain indirect administrative labor and non-labor costs which cannot be readily identified with any particular research project. These costs have been recovered by charging the sponsor a flat rate percentage (currently 20%) of all direct labor charges for that research project. This 20% is taken out of the research project upon receipt of a MIPR or an Order for Work and allows 10% to the Comptroller to pay for the salaries of personnel who work indirectly on research but aren't charged to it, such as the RAO staff. The remaining 10% is allocated to the principal investigator's (PI) academic department to pay for the non-labor indirect costs and bid and proposal costs such as supplies, books and telephone calls. The method by which the percentage used is determined is described below.

(1) Indirect Labor Costs. The Director of Research Administration has been tasked with annually surveying departments and academic groups to determine the cost of indirect labor expended to support research. The ratio of indirect to direct labor then constituted the charge for indirect labor costs in the upcoming fiscal year. [Ref. 23:p. 3] Currently, this charge is 10% of the total direct labor charges.

(2) Indirect Non-Labor and Bid and Proposal Costs. Academic Group and Department Chairmen have, in the past, submitted an annual budget of indirect non-labor and bid and proposal costs. (See Figure 10.) [Ref. 23:p. 2] This information was then used to determine the appropriate percentage of direct labor cost to be used for indirect costs in the upcoming fiscal year.

The total amount of indirect non-labor and bid and proposal costs has not been permitted to exceed 10% of the total direct labor costs for any particular reimbursable research job. [Ref. 24:p. 4] NAVPGSCOL is currently using a 10% rate for these costs.

(3) Total Indirect Costs Charge. The total indirect cost rate to be charged has been determined annually by the Provost, and not permitted to exceed the sum of

ESTIMATE OF INDIRECT RATE REQUIREMENTS FOR FY8
LIST ONLY ITEMS FUNDED BY INDIRECT NON-LABOR AND B&P FOR RIDGE EFFORTS

Description and Expense Element	FY Indirect Costs	FISCAL YEAR 198 ___					Total
		1st Qtr	2nd Qtr	3d Qtr	4th Qtr		
INDIRECT NON-LABOR							
Supplies							
Equipment							
Travel							
Miscellaneous							
Page publication							
Repair of Laboratory Equipment							
Long Distance Calls							
Copy Paper							
INDIRECT B&P COSTS							
Faculty Salaries							
Support Staff Salaries							
Laboratory Equipment							
Departmental Supplies							
Travel							
Miscellaneous							
Books							
Rental/Repair/Calibration of							
Laboratory Equipment							
Job-Related Training for							
Support Personnel							
Other (specify) (Needs approval by 012)							

Figure 10. Budget of Indirect Non-Labor and Bid and Proposal Costs

indirect labor and non-labor and bid and proposal costs. Accordingly, the FY87 indirect cost rate for NAVPGSCOL is 20%. [Ref. 23:p. 4]

e. Budgeting for Individual Research Projects.

Research proposals are prepared by the individual PI's, describing the work they intend to do and indicating possible outcomes of the studies. In effect, they are contracts which state the research activities planned and the anticipated costs of performing them.

The PI must ascertain the total funding required to complete the job and adequately justify this figure by using the proposed budget page. The budget page will list the estimated costs of salaries for the researcher and his or her support personnel; indirect costs for labor, bid and proposal costs, page publication charges and travel for presentation or research results at symposia; equipment and supplies; foreign and domestic travel; and publication costs. (See Figure 11.)

If the sponsor agrees to fully fund a project, it will be billed for all the actual direct and indirect costs of the project. Direct labor charges are based on a daily rate with an acceleration rate (currently 22 1/2%) to appropriately allow for benefits directly associated with labor, such as earned annual and sick leave, retirement and insurance. Equipment, travel and supplies are charged to

BUDGET PAGE

Estimated Costs

A. Salaries

1. Faculty Member's Name

a. Principal Investigator (One academic quarter plus one intersessional period)	\$15,000
b. Associate Investigator (One academic quarter)	8,000

2. Support Personnel

a. Technician (6 person-months)	7,500
---------------------------------	-------

3. Total Labor Charges	\$30,500
------------------------	----------

Note: The above includes direct benefits such as insurance, retirement, earned sick and annual leave.

B. Indirect Costs (Percentage to be announced annually)	\$6710
---	--------

Authorized indirect costs incurred for the support of research projects at NPS are included in this proposal and include such items as indirect labor costs, Bid & Proposal costs, page publication charges, and symposium presentation travel subsequent to project completion.

C. Equipment and Supplies (List items of equipment)	5,500
---	-------

Note: Unless specifically stated to the contrary, acceptance and fiscal support of the proposal authorizes approval of the procurement of equipment as indicated in the proposal and retention of title to that equipment by the Naval Postgraduate School.

D. Travel (state where, if known)	1,200
-----------------------------------	-------

E. Publication Costs	500
----------------------	-----

(List costs if intention is to publish results of the project)

TOTAL ESTIMATED COSTS: \$44410 -

Figure 11. Budget Page

the project without any additional surcharges. Indirect costs are charged on the basis of the indirect cost rate described in subsection 2.d. of section A in this chapter.

Therefore, anticipated costs must be carefully estimated and budgeted, using the appropriate acceleration rate for labor and considering all supplies, travel and equipment that will be required. Recognizing that a portion of the research contract money will be used to cover indirect costs of research rather than the direct costs of the contract is crucial, since, as previously mentioned, these funds are removed by the Comptroller when the MIPR or Order for Work and Services is received. This money is unspendable inssofar as the PI is concerned. Any monies not spent are, of course, reclaimable by the sponsoring activity.

3. Proposal Submission and Review Process

Upon signature of the department chairman, the proposal is forwarded to the Director of Research Administration. If appropriate, it is signed and forwarded to the Division Dean for approval.

Requests for Foundation Funding are reviewed by the Director of Research Administration and the Division Dean. Upon signature, the proposal is forwarded to the Research Council for action.

If the project is approved by an external sponsor, a MIPR or Order for Work and Services will be received by the

Comptroller from the sponsoring activity. If disapproved, the investigator may resubmit to an alternate sponsor.

Funds can be obligated for this project once an acceptance is made and the accounts are opened in the IDA-11B. This will be addressed in greater detail later in the chapter.

4. Post-Acceptance Constraints on NAVPGSCOL's Actions

As noted in Chapter II reimbursable funds may be used only for the purpose intended by the providing activity. It should be noted that the monies received may be either from the RDT&E or O&M,N appropriations. As previously discussed, the purpose of the funds and their availability for obligation and expenditure are not altered by their transference to a different activity via reimbursables. Hence, acceptance of research reimbursables by NAVPGSCOL requires that these funds be kept separately identifiable, that they be spent only on the appropriate type of items (investment or expense), that they be utilized only during the appropriate time period and that the total amount of funds provided not be over-obligated or over-expended.

The terms of approved research proposals must be honored. In addition to the contractual terms in the proposal, some sponsors provide even more stringent written guidelines. These guidelines must be followed if the research funding is accepted.

However, the exact direction which will actually be taken in a research project is, by the very nature of research, uncertain. This requires that there be some flexibility in the way funds are spent. Recognizing this NAVPGSCOLINST 3900.1 [Ref. 14:pp. 1-3] provides for a certain amount of deviation between actual and estimated costs listed on the budget page.

Major changes in plans must be submitted to the Director of Research Administration, who may approve the change, forward the change to the Division Dean, or require explicit sponsor approval. This can be done either by telephone conversations between the sponsor and the Director of Research Administration, receipt of a memo from the sponsor giving his approval, or the sponsor's written approval or a modified proposal.

5. Summary

It should be noted that research funds are used to pay for all costs associated with research activities. Care must be taken to ensure that all direct costs of research, labor, travel, support and materials, are incurred and charged to the specific research job order, rather than to the O&M,N funds which are provided for the teaching mission area. Indirect costs are charged to the department's indirect cost funds or to the Comptroller's indirect labor cost funds.

Thus, research funds can be viewed as falling into one of the following categories:

- a. Principal Investigator's funds which are specifically allotted to cover the direct costs of an approved research project (either from external sponsors or from Foundation Funds).
- b. The department non-labor, bid and proposal funds which are used to cover a department's indirect costs of doing research.
- c. The Comptroller's indirect labor cost funds which are used for research support labor not directly associated with individual projects.

B. TRACING THE FLOW OF FINANCIAL INFORMATION

This section will narratively trace the flow of financial information throughout the NAVPGSCOL system, discussing the

- 1) Method used to initiate an account on the official and memorandum accounts,
- 2) Purchase requisition process,
- 3) Travel procedures, and
- 4) Labor data accumulation.

Purchase, travel and labor data entry and filing will be noted as they occur in the process chronologically.

Specific reports generated will be discussed and examples shown.

1. Initiating Research Accounts

NAVPGSCOL is notified by the sponsor when a project has been approved. The accounting data are then entered by the Comptroller's Office personnel into the official

accounting system (IDA-IIB) and the local memorandum accounts (AIMS program on the WANG).

a. Actions Required Prior to Accepting a Job Order.

The analyst must have a copy of a funding document (either a NAVCOMPT Form 2275, a MIPR, or a government check), and an approved Research Proposal (date stamped by the Correspondence and Records office signifying that the original proposal was sent out) prior to setting up an account for a research project.

The analyst is required to re-tally the figures on the budget proposal to ensure correctness. The budget proposal must match the funding document authorization. After totaling the direct and support labor estimates, the 10% charge for indirect costs is subtracted when appropriate.

A variety of codes that will enable the accounting data to be aggregated to meet management needs are assigned. The budget analyst allots a segment number and a block or serial numbers to each funding document. (Serial numbers are used in the document numbering system for travel orders (TO) and purchase requisitions (PR).)

In most cases, there will only be one job order associated with a funding document. Each job is assigned a job order number. Generally, an end use job order number

(EUJON) is also assigned to allow AAA to bill the appropriate activity. (EUJON's are not used if the funding document is a MIPR, the sponsoring activity has the same AAA or the item purchased is expense element Q).

A reimbursable category code is assigned based on whether or not the funds are considered to be restricted. Restricted funds are from O&M,N appropriated funds and cannot be used for items in excess of \$5000. The funding document is then accepted by typing on the document the following:

Accepted: (the date)
Approp: (the appropriation from which these funds originate)
Job Order: (the job order number for that job)
Segment: (the segment number for this funding document)
LMC: (appropriate to that PI's department)
EUJON: (if appropriate)
Reimb Cat: (from reimbursable category list)

b. Establishing the Account on the IDA-11B.

The above information is entered into the IDA-11B database via one of the online terminals. AAA requires, in addition, that the total funds that this particular job order is authorized be entered in order to establish the account. Funding authorization, as this process is called, is performed only when establishing a new account or amending an old account, as would be done if a sponsor were to approve additional funding.

c. Establishing the Account on the WANG.

Similarly, this information is entered into the AIMS program on the WANG computer, thereby establishing the account in the memorandum records. The WANG and IDA 11-B computer systems are not compatible. Thus each requires separate data input.

The analyst is required to take 20% of the total direct labor costs from the budget page and set these funds aside to cover indirect costs. The 20% is reflected in two additional amounts which are entered into the WANG. Department indirect cost money is added to the appropriate department's account for indirect non-labor and bid and proposal costs. Two different segment numbers corresponding to restricted and unrestricted funds are used to segregate investment from expense type monies. The remaining 10% is set aside within the original job order for indirect labor costs. This ensures that it is not included in the net available figure that the PI uses to obligate money.

The funds authorized for labor are taken off the budget page and entered into the WANG under that job order as a commitment or labor reservation file. The total amount available to be spent (or the authorization less 20% of direct labor costs) is also entered.

Once the funding documents have been accepted and the accounts have been initiated, the funds are

available for obligation by the departments. Departments are notified through the RAO of fund availability via a memo from the Comptroller's Office entitled Funds Authorization Grant/Change.

2. Purchases

a. Academic Departments, Academic Groups, and Research Groups.

Investigators and chairmen are sensitive to the facts that only items cited on the budget page may be purchased and that the proper types of funds must be used. Some chairmen screen all purchase requests (PR's). However, they do not compare them to the budget page. Hence, only the most significant deviation is likely to be noted at this stage. Chairmen rely on the PI's to obligate funds in accordance with the budget page and recognize that the RAO will closely review the PR's as well.

A primary concern of PI's and chairmen is the funding status of research accounts. Records must be carefully maintained and monitored to ensure that only the items requisitioned for a particular research account are charged to that cost code and that the charges are correct. Some departments keep manual accounting records, others have partially automated their records.

(1) Manual Recordkeeping Method. In some departments, the Chairman's Administrative Assistant (AA) maintains one or more notebooks for research accounts, with

a separate log sheet for each account's PR's. An additional notebook is maintained for department indirect cost money. A pending notebook is kept for items which are on order but not received yet.

Bi-monthly RAO reports are retained for each account. These reports are compared to account log sheets by the AA to ascertain whether or not charges are appropriate and price changes are reflected. Conflicts between departmental records and the RAO report are brought to the attention of the RAO.

If the PI wishes to spend his research account money to purchase an item, he writes a memo or submits a locally prepared purchase request form to the AA detailing the item, its price and the desired source. The AA prepares the PR, ensuring that the serial number assigned is within the block of numbers assigned to that research account or department. The PR is then initialed by the PI and generally signed by the Chairman.

A photocopy of the PR and the memo or request form are filed in the pending notebook. Pertinent information such as the issuer, PR number, individual professor, item purchased, and the price of the item (estimated and actual) are recorded on the log sheets in both the

account notebook and the pending notebook. The PR and indirect Cost Form (if appropriate) are then forwarded to RAU.

Non-Navy stocked items are obtained through Open Purchases. The AA will also retain a copy of the purchase order used for that item.

Upon receiving an item, the AA logs the date onto the appropriate log sheet and signs and dates the warehouse receipt, which is a copy of the PR superimposed on a DD1155 Purchase Order. (See Figure 12.) The warehouse receipt is then generally attached to the PR package and retained in that particular research account's section.

(2) Partially Automated Method. Departments that have partially automated systems maintain the records described above. Additionally, all PR's are usually recorded on a personal computer (PC). A software package, such as knowledge-worker, enables account status to be printed in spreadsheet format. This is then used as the account log sheet. Frequently, departments employing PC's also maintain computerized inventories of items received, particularly for high value items. These accounting systems can be quite sophisticated. In the case of one large research group, for example, internal reports are prepared for planning purposes which are almost solely based on the

SEND TO: TECHNOLOGY SERVICES, INC., WEST BRN-REGIONAL OFFICE 1401 21st ST. SUITE 308, SACRAMENTO, CA 95814		REQUISITION IS FROM: (62271) NAVPGSC Monterey, CA 93943 AS Dept, Code 54, In-224, X3211, (James)	
DOCUMENT NO. 62271 6217-3388 R 6 WGDMA A		SEE ATTACHED, SP-36 EA 00001	
86-F-1122 002		08 AUG 1986 \$676.33 8 AUG 1986 HR V 8/11	
RECEIVING OFFICER ELDG 349 MF: 86-P-1122 NAVAL POSTGRADUATE SCHOOL MONTEREY, CA 93943		COMMANDING OFFICER NAVAL SUPPLY CENTER OAKLAND, CA 94625	
MAKE ALL PACKAGES AND PAPERS WITH CONTRACT OR ORDER NUMBER			
The delivery order is subject to instructions contained on the side of form and is issued on another Government agency or is secured under and subject to terms and conditions of order numbered contract			
Reserve your TELECOM STEPHINE HEBBIT 8/12 General Provisions of Purchase Order on US Form 154-PRCPT (Rev. 11-74) APPLIES ONLY IF THIS BOX <input type="checkbox"/> IS CHECKED AND NO 14 IF THIS BOX <input type="checkbox"/> IS CHECKED, special provisions			
2301a(3) as specified in the schedule of which the U.S. is Government or Foreign Firm, is authorized under 2301a(3)			
Additional General Provisions apply. Supplier shall sign "Agreement" on US Form 1152 and return			
ACCOUNTING AND APPROPRIATION DATA - ACCOUNTING CLASSIFICATION FORM			
1761804.1180	000	62271	0 00022M 2D WGDMA PP6217334800 \$676.33
18	SCHEDULE OF SUPPLIES & SERVICES		20 QUANTITY ON HAND ACCEPTED
0001	SMARTCOM II BY HAYES		1 EA 116.84 116.84
0002	SMARTMODERN 1200B WITH SMARTCOM II		1 EA 409.49 409.49
0003	LOTUS 1-2-3 UPGRADE TO RELEASE 8 (ITEM #077-009) (Disk enclosed) ITEMS 0001 AND 0002 GS-00K36AGS5283 FSC 70 I B ITEM 0003 GS-00K36AGS6062 FSC 70 I C		1 EA 150.00 150.00
QUANTITIES RECEIVED BY THE GOVERNMENT IS SAME QUANTITIES ORDERED INDICATED BY V MORE IF FEDERAL ORDER QUANTITIES RECEIVED BELOW QUANTITIES ORDERED AND INCREASE		UNITED STATES OF AMERICA BY K. GARCIA CONTRACTING/ORDERING OFFICER	
QUANTITY IN COLUMN 20 HAS BEEN INSPECTED <input type="checkbox"/> RECEIVED <input type="checkbox"/> ACCEPTED AND CONFORMS TO THE CONTRACT (EXCEPT AS NOTED)		25 TOTAL \$676.33 26 DIFFERENCES 27 SHIP NO 28 DO VOUCHER NO 29 PAID BY 30 INITIALS 31 PAYMENT 32 AMOUNT VERIFIED CORRECT FOR 33 CHECK NUMBER	
DATE SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE			

Figure 12. Warehouse Receipt

group's records. The only piece of external data included is the balance from the RA0 report. (See Figure 13.)

(3) Exceptions. It has been noted that departments generally maintain files of all documents submitted. One department surveyed, however, relays all purchase request forms and warehouse receipts to the PI for his personal records. Hence, this department uses manually prepared log sheets and purchase orders (when applicable) as its sole documentary evidence of transactions.

b. Research Administration Office.

The PR package is reviewed by the Research Administration Assistant, who ensures the item is consistent with the approved budget page, no errors were made in preparing the documents, and that the amount on the PR does not exceed the permissible levels for that account's source appropriation (i.e., that O&M.N funds are not spent on an investment item). The PR is then compared to the RA0 Daily Balance Summary to ensure that there are sufficient funds remaining in the account.

The Research Administration Assistant signs the PR, pulls the pink copy, and gives it to the data entry clerk with the supporting documentation. Remaining copies of the PR are forwarded to Issue Control (Supply Department).

	FEB 25 87	FUNDS PROPOSED	FUNDS RECEIVED	10% BUFFER	CURRENT BALANCE	COMPTROLLER BALANCE	PROPOSED BALANCE
ONR-OCN1	RCGDS						
NOSC-EQMT	RXLDS						
ON-ARCTI	RXJDS						
ON-HEXOS	RXRDS						
NEPRF-ARC	RXSIDS						
NPS	RSPTP						
ONR-TWIT	RXUDS						
NEPRF-SNI	HAGGET						
ONR-DOLE	XXXXX						
NSF	RPTSR						
XXXXX	RCPSQ						
TOTALS		\$451860.00	\$341860.00	\$2849.74	\$148925.28	\$53409.99	\$246175.28

	FEB 25 87	PROPOSED	RECEIVED	S A L A R Y SPENT WAGES	CURRENTLY AVAILABLE	PROPOSED BALANCE	INDIRECT PROPOSED TOTAL	COSTS SPENT TO DATE
ACCT								
ONR-OCN1	RCGDS							
NOSC-EQMT	RXLDS							
ONR-ARCTI	RXJDS							
ONR-HEXOS	RXRDS							
NEPRF-ARC	RXSIDS							
NPS	RSPTP							
ONR-TWIT	RXUDS							
NEPRF-SNI	HAGGET							
ONR-DOLE	XXXXX							
NSF	RPTSR							
XXXXXX	RCPSQ							
TOTALS		\$222150.00	\$168400.00	\$52104.12	\$116295.88	\$170045.88	\$46430.00	\$33680.00

	FEB 25 87	EQUIPMENT PROPOSED	MISC/PUBLICATION RECEIVED	CURRENTLY SPENT	PROPOSED AVAILABLE	PROPOSED BALANCE
ACCT						
ONR-OCN1	RCGDS					
NOSC-EQMT	RXLDS					
ONR-ARCTI	RXJDS					
ONR-HEXOS	RXRDS					
NEPRF-ARC	RXSIDS					
NPS	RSPTP					
ONR-TWIT	RXUDS					
NEPRF-SNI	HAGGETY					
ONR-DOLE	XXXXX					
NSF	RPTSR					
XXXXXX	RCPSQ					
		\$125430.00	\$104430.00	\$79341.24	\$25088.76	\$46088.76

Figure 13. Spreadsheet from a Research Group's Memorandum Accounts

The data is then entered into the RAU's FORTRAN database on the computer. It is later printed and compared to the source paperwork.

The Scientific Staff Assistant in the RAU verifies the printout against the source paperwork. Changes to the data file, if necessary, are made. After the data are satisfactorily entered into the mainframe computer, all documentation is filed.

c. Issue Control.

The PR is edited to ensure that it has been filled out correctly. If the item has a Naval Stock Number (NSN) (which is frequently not the case with research), the current price is taken from the list of valid NSN's and changes are made if necessary to the price and NSN listed on the PR. The PR is then stamped with a purple "V" and initialed to indicate it has been through Issue Control and forwarded to the Comptroller's Office.

d. Comptroller's Office.

(1) Edit Clerk. The edit clerk uses the Segment/Job Order/Document Number Listing to ensure that the PR is made out for a valid job order and that the numbers assigned are correct and consistent with each other. She then checks the PR against the PI card file to ensure that the correct serial and segment numbers have been used.

The Job Order Status Report is used to determine the amount of money remaining in that account. Cases where there are insufficient funds are referred to the budget analyst assigned to that account rather than being processed further. Expense elements are checked against the master list to ensure the proper code has been used, and changes are made if necessary.

PR's are screened to ensure that they have been properly filled out and are then date stamped and initialed to indicate approval. The edit clerk removes the green copy of the PR and a copy of the SF 36 (PR continuation page), as appropriate, and sends them to the budget analyst handling that account.

Approval to make price changes on a PR may subsequently be requested of the edit clerk by the Purchasing Division. If the changes are less than \$100, they are verbally approved and the edit clerk prepares a Request for Document Increase/Decrease. These are forwarded to the budget analyst for entry. Changes in excess of \$100 are referred to the analyst who will approve or disapprove them on the basis of the account balance.

(2) Budget Analyst

The budget analysts receive information about obligations from the PR packages previously described. The analyst enters the Original Document File on the WANG

and inputs the job order number, document number, expense element, and contract number. She then enters the transactions file, enters the obligation and posts it. If insufficient funds are available to pay for the item, she investigates the reason.

The transaction is next entered into the IDA-IIB. IDA features a set of menus which must be stepped through consecutively to properly identify the job order to which the obligation will be charged. Any errors made cannot be changed by NAVPGSCOL but must instead be relayed by telephone to AAA, which will correct them.

This thesis has referred to NSC Oakland as an AAA to emphasize its accounting role for NAVPGSCOL. It is more accurate, however, to use the term FIPC, since NSC Oakland also disburses money to liquidate NAVPGSCOL's obligations.

Accordingly, the Transaction Listing which is received from AAA reflects the funds obligated and entered through the on-line terminal by NAVPGSCOL. It also lists the expenditures which have been made by AAA on behalf of NAVPGSCOL since the last reporting period ended.

The Transaction Listing is therefore used by the budget analyst to record expenditures into the memorandum accounts and decrease the net amount of money available on the particular job order master authorization. Once

the obligation has been totally liquidated through one payment or several partial payments, the document can be removed from the WANG's Original Document File and entered into the Original Document History File.

e. Supply Department.

After the edit clerk removes the green copy of the PR, it is forwarded to Issue Control. Standard stock items are ordered from the Navy supply system using a MIL-STRIP message. Open Purchase items must be obtained by the Purchasing Division through non-Navy sources. After the contract is awarded, a copy of the purchase order (DD1155) and the original of the PR is sent to the Receiving Branch, or warehouse. Copies of the purchase order are also sent to the vendor, the ordering department (to notify them of any price changes that may have occurred), and to Receipt Control. The warehouse uses a photocopy of the purchase requisition superimposed on the DD1155 as a receipt. After the item is accepted by the department, the Receiving Branch forwards the signed receipt to Receipt Control.

Receipt Control is required to certify invoices for payment. In order to do so, Receipt Control must first have a copy of the invoice, a warehouse receipt signed by the Receiving Branch, and a warehouse receipt signed by the requesting Department, proving that the item received was the item ordered and is in working condition. The package

is then forwarded to AAA, so that AAA can liquidate the obligation.

3. Travel

a. Academic Departments, Academic Groups and Research Groups.

It was noted in subsection B.2.a. of this chapter that some departments maintain manual accounting records, whereas others keep automated accounts as well. Departments generally keep the same style records for travel as they do for purchases. Some departments even use the same log sheet for both, although the travel orders (TO) and PR's may be prepared by different people. All departments surveyed kept central files of travel documentation.

Travel may be funded by either a specific research account or department indirect cost money. The Department Chairman approves all travel except his own, which is approved by the appropriate Division Dean. While chairmen do not specifically compare the travel orders to the budget page, they are usually familiar with the travel planned, since travel impacts on teaching classes.

Orders must be accompanied by a Travel Worksheet, Passenger Reservation Request, Travel Request Form, and, if appropriate, an Indirect Cost Form. Travel is logged into the pending and account notebooks previously mentioned with the issuer, tango number (a type of document serial number used for travel orders), date issued,

individual traveling, destination, and the estimated and actual cost. A copy of the orders is retained in the pending file. The orders and attached forms are then forwarded to RAO.

b. Research Administration Office.

The Research Administration Assistant reviews the package for errors upon its receipt at RAO and ensures that any proposed travel was listed on the budget page. The TU amount is compared to the RAO Daily Balance Summary to ensure that there are sufficient funds remaining in the account.

If consistent, the Research Administration Assistant signs the TU, pulls a copy and gives it to the RAO data entry clerk with the supporting documentation. This information is then entered into the FORTRAN database and later verified by the Scientific Staff Assistant, using the same procedure previously described for PR's. Copies of all documentation are filed.

c. Comptroller's Office.

(1) Edit Clerk. The edit clerk checks the Job Order Status Report, ensuring that adequate funds are available for the travel. The documents are then date stamped, travel stamped, and forwarded to the Supervisory Fiscal Analyst. After the travel is completed, the orders will be returned to the edit clerk with a Travel Voucher Summary

attached. The documentation is reviewed against the original travel orders for errors and then forwarded to the budget analyst.

(2) Supervisory Fiscal Analyst. The Supervisory Fiscal Analyst reviews the orders against the travel regulations to ensure that the criteria for official travel are met and that the travel is in the interest of the U.S. Government. The travel orders package is then sent to the travel clerk.

(3) Travel Clerk. The travel clerk checks the dates requested and explanation of why weekend travel, if included, is required. This is done so that per diem will not be paid inappropriately.

She also reviews the funding source of the travel, ensuring that research travel is funded through research reimbursables, while travel for the benefit of the school is funded through O&M.N funds. Recognizing that even "no cost to the government" orders actually represent an expense in terms of labor, it is important that they be charged properly. She pulls two copies of the travel orders and the Travel Request Form for her files. The remaining copy is returned to the edit clerk, who will forward it to the appropriate budget analyst for entry into the system.

After the travel is complete, the orders package is filed separately with the claim for reimbursement.

When the check arrives, the travel clerk logs the name of the traveler, the check number, the voucher number and the location to which the check will be sent and then ensures that the member receives it. The copy of the voucher which was received with the check, the travel clerk's copy of the orders, and any attached paperwork such as travel advances, are returned to the edit clerk, who forwards the documents to the budget analyst for entry into the system.

4. Labor

a. Civilian Personnel Office (CPO).

CPO prepares a Notification of Personnel Action (Form 50) when a civilian employee is hired. All pay status changes require that a new Form 50 be submitted. Copies of this form are sent to AAA (by transmittal letter), the individual hired and the Labor Branch. CPO retains a copy to use for data input to the Personnel on Board list kept on its PC.

b. Academic Departments, Academic Groups and Research Groups.

(1) Support Personnel. Individuals personally fill out their time cards (NAVCOMPT 911A) reflecting the hours they actually worked during the time period, including in/out time, overtime, annual and sick leave, and any absences without leave. The purpose of the time cards is to account for hours worked for payroll and timekeeping; hence,

they do not include cost code information. Department chairmen verify the cards' accuracy and sign them prior to submitting them to the Labor Branch.

Support personnel may spend a workday on more than one research project. Departments prepare a memo for submission to RAO which cites the hours spent on each job order by each support person. Prepared on a bi-weekly basis, this information is used in the Research Reimbursable Support Personnel Employment Schedule.

(2) Faculty. Faculty members are not required to prepare and submit time cards. Instead, Faculty Employment Certification memos are prepared for each pay period by the departments and signed by the chairmen, stating the number of hours spent by each professor on both teaching and research cost codes. These are forwarded to the Faculty Employment Scheduler, via the RAO.

Changes to the Faculty Employment Schedule prepared at the beginning of the year occur continually. Additional memos reflecting changes are sent to RAO as they occur, and thence to the scheduler, who will generate a new schedule for each pay period.

Faculty may be partially funded by O&M, N and Research during a given period. Hence, accounting for the amount of time spent on research and teaching accurately is critical for the school to be appropriately reimbursed.

c. Research Administration Office.

The Scientific Staff Assistant compiles the various support personnel memos from the departments bi-weekly. These memos are used to prepare the Research Reimbursable Support Personnel Employment Schedule, which lists each individual and the cost code to which his salary is assigned. The appropriate jobs are charged for labor on the RAU accounts, and the schedule is then forwarded to the Labor Branch.

Similarly, the Faculty Employment Schedule, as amended by any changes received from the departments, is used to charge faculty salary costs to RAU accounts. The Scientific Staff Assistant reviews all changes made to the schedule to ensure funds are available, posts the proper accounts and then forwards the changes to the Faculty Scheduler. Any further changes are made to the RAU accounts on the basis of the new Faculty Employment Schedule.

d. Director of Academic Planning's Office.

(1) Faculty Scheduler. The Faculty Scheduler generates the Faculty Employment Schedule on the basis of the initial departmental input and any changes which are made. This schedule is then promulgated to the departments, the RAU and the Comptroller's Office (Labor Branch).

Additionally, she compiles information from the departmental Faculty Employment Certification memos.

preparing the bi-weekly Faculty Employment Certification Letter for the Comptroller's signature. This letter is also forwarded to the Comptroller's Office (Labor Branch).

e. Comptroller's Office.

(1) Labor Branch.

(a) Official Labor Records. As previously described, an individual's records are placed in the IDA files and the individual is included on the payroll when AAA receives the Form 50. Information concerning a worker for a particular pay period is then accumulated on labor and time cards or via the Faculty Employment Certification memo.

Civilian personnel are required to fill out bi-weekly labor cards. However, in the case of research personnel, labor cards are completed by the Labor Branch of the Comptroller's office rather than the individual, on the basis of the Support Personnel and Faculty Employment Schedules. The labor cards are compared with the time cards or Faculty Employment Certification memo to ensure that the total hours on each document balance. Labor cards, time cards and the Faculty Employment Certification Letter are then forwarded to two different sections of AAA to be entered into the IDA II-B.

(b) Memorandum Labor Records. Labor data are recorded by the Labor Branch in a file on the WANG entitled Payroll/Budget Master. A separate file is

initiated in the Payroll/Budget Master for each person, as they are hired, on the basis of the Form 50. This file contains information identifying the individual, his command, the department, and line manager. It gives the term of appointment (for example, 1 year or 3 years), shows the employee's employment status (full, part-time or intermittent), the number of hours worked per week, grade and step rates for hourly, daily, overtime and annual purposes, the clock code, and the appropriate AG/SAG. Lastly, the file notes the type of funds used to pay salary costs (O&M,N or reimbursable), the billet number, when the person was employed and (if appropriate) terminated, whether or not he intends to return, the occupational series code, and annuitant status. Terminated personnel files are placed in an archive or history file to reduce the size of the Payroll/Budget Master.

Costs of labor are entered into the memorandum records by Labor Branch Personnel bi-weekly in concurrence with labor and time card submission to AAA. The information input is not reflected in any way in the individual job accounts. A local report is then generated, showing the exact information that NAVPGSCOL submitted, for later comparison purposes with AAA's Transaction Listing report.

(2) Budget Analyst.

(a) Official Labor Records. The IDA 11-B is designed so that labor data can be entered only by AAA, via the time and labor cards and the Faculty Employment Certification Letter. This is in direct contrast to travel and purchases, where obligations are entered online by the Budget Analyst.

The Budget Analyst compares the labor information from the IDA Transaction Listing report with the WANG Labor report generated by the Labor Branch. The two reports should concur. Variances are investigated and resolved.

Labor costs are then entered into the memorandum records by the Budget Analyst for each individual account, and subtracted from the balance in that job order's labor reservation file. Thus, the budget analyst will arrive at a new balance of labor available, as well as a new net amount available on that job order master authorization.

C. ACCOUNTING FOR RESEARCH MONIES

It is impossible to adequately document information flow, as was done in Section B of this chapter, without also describing much of the mechanical aspects of the underlying accounting system. Hence, this section will concentrate on

the characteristics and capabilities of the accounting systems employed by the various record keepers, rather than the details of how information is entered into them.

1. Principal Investigator's Memorandum Accounts.

The RAU issues two copies of their bi-weekly report to each department for the Chairman and the PI. Typically, the PI's review this report (Figure 14) for any extraneous entries, note any items that are not reflected, the total balance of money left in the account, and the amount unavailable due to NAVPGSCOL's retention of 10% for price changes in the case of purchase requisitions (PRs) and travel.

Codes are provided on the report to assist in cost category classification. If unobligated balances in the categories of travel, PR's or labor are desired, the PI must sum up the items listed under appropriate category codes. (See subsection C.3. of this chapter.) Any discrepancies are brought to the attention of the Department or Academic Group account keeper for investigation.

PI's accounts are primarily of the checkbook variety. The PI retains copies of the RAU report from period to period, notes the beginning and ending balance and uses the balance or funds available for expenditure to determine whether or not further travel or purchases can be obligated. Generally, PI's records are not supported by

ACCOUNT: NAME TITLE: SUBTASK 539, NPS-DMA JOINT PROGRAM PAGE: 1
AS OF 2 DEC. 1986 COST CODE: R2461 MAIL CODE: 68VS SERIAL NO(5): 8936 THRU SEGMENT NO. 2461/4 EXPIRES: 12-30-85
SPONSOR: DEFENSE MAPPING AGENCY, WASHINGTON, DC 20305

DATE	ITEM DESCRIPTION	UPDATE INFO	SUB NUMBER	LABOR OBLIG	OTHER OBLIG	SUBSIDIO BALANCE	SUBSIDIO BALANCE	ACCOUNT BALANCE
3-21-86	FR OEFMAP, PE62, ENV MAPPING 26ENV	DO 1	8078-2964				0.0	25000.00
4-9-86	TO OHL COVER, ANAHEIM, CA	4-17-86	8078-2964		10.00		0.0	24990.00
4-9-86	TO CANCELLED	0.0	8078-2964		25.00		0.0	24740.00
4-17-86	TO CANCELLED	0.0	8078-2964		33.81		0.0	24406.19
5-4-86	TO PACIFIC BELL, FEB. BILL	FIRM	6054-8996				0.0	24406.19
5-11-86	TO G. SCHAEFER, CPT/NOAA, TORONTO, CANADA	7-1-86	8080996		1009.00		0.0	23397.19
5-11-86	MR W. PRINSKY, SEMINAR	FIRM	6131-8996		150.00		0.0	23247.19
5-11-86	TO PACIFIC BELL, FEB. BILL	FIRM	8078-2964		72.00		0.0	23075.19
5-11-86	TO PACIFIC BELL, FEB. BILL	FIRM	8078-2964		3001.71		0.0	20073.48
7-1-86	TO CANCELLED	0.0	8080996		-1009.00		0.0	21082.48
7-23-86	CM COMPUTER CRAFT, DISPLAY WRITE	80A0005	6202-8996		436.47		0.0	20645.99
7-29-86	SU RES HOME CENTER, SUPPLIES	80A0045	6203-8996		34.23		0.0	20301.76
7-29-86	SU RES HOME CENTER, SUPPLIES	80A0045	6204-8996		93.21		0.0	19368.55
7-29-86	SU RES HOME CENTER, SUPPLIES	80A0045	6205-8996		50.00		0.0	18868.55
9-6-86	RP PENINSULA OFFICE EQUIP, REPAIR		6295-8996		80.00		0.0	17968.55
9-17-86	SS OOL OAYS O.T. (9 HRS) NAME	LAER 002					0.0	17968.55
9-23-86	SU RES HOME CENTER, SUPPLIES	80A0045	6267-8996		139.33		0.0	17829.22
9-24-86	SU LACKIT, SUPPLIES	80A0007	6268-8996		45.08		0.0	17374.14
9-29-86	CM MICROAGE COMPUTER, OUAO 80A00	80A0002	6265-8996		49.00		0.0	16875.14
10-24-86	MC SEA SURVEYOR, INC., LEASE	87A0523	6295-8996		1415.00		0.0	15460.14
10-28-86	TO PACIFIC BELL, AUG 86	FIRM	6242-8996		173.71		0.0	15286.43
10-28-86	TO PACIFIC BELL, AUG 86	FIRM	6242-8996		64.11		0.0	14645.32
11-16-86	TO PACIFIC BELL, SEPT 86	FIRM	6269-8996		59.90		0.0	14045.42
11-16-86	MP MEMEC CORP, TERMINAL	FIRM	6316-8996		2495.00		0.0	11550.42
11-16-86	SU COMPUTER CRAFT, AST 6 PAK PLUS	80A0004	6310-8996		355.20		0.0	11195.22
11-21-86	CP CONTINENTAL RES., MATH/WORO PROCESS. SYSTEM		6318-8996		945.00		0.0	10250.22
11-21-86	SW TECHNICAL SUPPORT, EXACT SOFTWARE		6318-8996		435.70		0.0	9814.52
11-21-86	RP MNTY BAY COMP. CONSULTING, REPAIR PRINTER		6320-8996		150.00		0.0	9664.52
11-23-86	RP PENINSULA OFFICE EQUIP, REPAIR COPIER		6324-8996		150.00		0.0	9514.52
SUM TOTAL OF OBLIGATIONS:				LAER	17568.53	0.0		

MINIMUM BALANCES NECESSARY TO COVER POSSIBLE PRICE INCREASES ON ALL NON FIRM OBLIGATIONS... 0.0 1400.77
FUNDS AVAILABLE FOR EXPENDITURE (BALANCE - MINIMUM FOR PRICE INCREASES)... 0.0 5843.70

CATEGORY CODE	SUM COL 1	SUM COL 2	SUM COL 3	SUM COL 4	SUM COL 5	LEGEND OF CODES
BK	0.0	50.00	0.0	0.0	0.0	BK IS BOOK PURCHASE
CC	0.0	924.57	0.0	0.0	0.0	CM IS COMPUTER EQUIP. MINOR PROPERTY
CP	0.0	9345.00	0.0	0.0	0.0	CP IS COMPUTER EQUIP. PLANT ACCOUNT
FR	0.0	0.0	0.0	0.0	25000.00	FR IS FUNDS RECEIVED (MAIN ACCOUNT FUNDS, COLUMN 5)
FX	0.0	10.00	0.0	0.0	0.0	FX IS FEDERAL EXPRESS
MC	0.0	1175.00	0.0	0.0	0.0	MC IS MINOR PROPERTY CONTRACTS
MP	0.0	2495.00	0.0	0.0	0.0	MP IS MINOR PROPERTY (EQUIPMENT UNDER \$1,000)
RP	0.0	380.00	0.0	0.0	0.0	RP IS REPAIRS
SS	187.00	0.0	0.0	0.0	0.0	SS IS SUPPORT SALARY
SU	0.0	717.35	0.0	0.0	0.0	SU IS SUPPLIES
SW	0.0	452.70	0.0	0.0	0.0	SW IS SOFTWARE
TD	0.0	35.00	0.0	0.0	0.0	TD IS TELEPHONE BILLS
TR	0.0	70.00	0.0	0.0	0.0	TR IS TELEPHONE BILLS
TI	0.0	772.00	0.0	0.0	0.0	TI IS TELEPHONE BILLS

Figure 14. RAO Report

documents. In short, PI's accounts may best be described as manual. They are, however, based on an ADP product provided by RAÜ.

2. Departmental Memorandum Accounts

Academic Departments and Groups generally maintain manual records, using log sheets, notebooks, and retention of copies of all documents concerning research. These records are compared to the RAÜ report by the Administrative Assistant either when the report is received, or when PI's notice problems.

Some departments have moved to more sophisticated systems on various PC's in addition to manual records. In most cases, this has been done because planning labor for research jobs is complex or because large amounts of money or numbers of research job orders are involved. PC systems, where used, consist of spreadsheet programs which have been adapted to the needs of that group.

Departmental records are intended to allow the PI and the Chairman to know what has been obligated to date on a project, and compare it to the Budget Page and RAÜ balances to plan further activity. As such, they prove an excellent managerial tool and a ready means of checking the Comptroller's and RAÜ's accounts.

3. RAO Memorandum Accounts

RAO accounts are maintained by using a locally prepared Research Administration FORTRAN program, which generates several files. A Names Data file lists all the accounts, by the names of the PI's, that are currently open. In fiscal year 86, there were approximately 434 accounts in this file, some of which were carried over from the previous year. These data can be arranged by cost code or alphabetically by name. The End of the Year File is retained in hard copy by the Staff Scientific Assistant, listing all activity that occurred during that year, by account.

The RAO reports to PI's are printed and distributed bi-weekly. In addition, reports are generated to summarize the balance spent and remaining for all accounts. Foundation Accounts status, and information regarding the last line that was entered into an account and its present balance.

While more advanced and complex than the PI and Department accounts, the RAO accounts also comprise a check-book style system. The computer tracks the amounts obligated, builds a buffer of 10% for items that do not have a firm price, and makes the remainder available for expenditure to the PI. As prices become firm (through actual expenditure) the unused 10% buffer money is made available to the PI as well.

The RAU system is distinguished primarily by the fact that it was designed specifically to answer the information needs of the investigators and administrators. Clear, self-explanatory and chronologically arranged, reports are well suited to the management of funds. Accounts are identified by a locally assigned file name which, conveniently, is the name of the PI. The report also gives the title of the research contract, the sponsor, and the date the funds expire. Accounting information codes used are limited to the cost code, serial numbers for that account and the segment number.

The upper section of the RAU report details the specific labor, travel, indirect cost and stub transactions on the account to date, gives the total labor obligated, the total of other obligations, the amount being withheld for price changes, and the balance available for expenditure. The lower section, on the other hand, gives the total expenditures for various cost categories, and defines those categories. This allows the user to ensure that all expenditures are appropriate, as well as easily compare totals in each category against the budget page.

The computerized system is supplemented by document files. As noted in subsection B.2.b. of this chapter, RAU retains copies of all documents used to obligate funds as they are forwarded to the Comptroller for processing.

However, RAO is not included in the later flow of information. Therefore, updated price data and travel reimbursements are entered into RAO accounts only periodically or in response to departments providing copies. Since departments are not permitted to expend the buffer money until a firm price is known, this can cause problems, particularly when funds are close to expiring or depletion.

4. Comptroller's Memorandum Accounts

The Comptroller's memorandum records are maintained on a WANG computer using the AIMS software package. AIMS is a user friendly program which employs menus to input data. NAVPGSCOL has eleven terminals networked to a hard drive minicomputer which are used throughout the Comptroller's Department. The Supply Department does not access or use these records; they are used only for the accounting function.

The Comptroller's recordkeeping system differs substantially from that of the RAO. The former were designed to interface closely with the official records kept by AAA, and therefore are based on the cost classification codes discussed in Chapter II, whereas the RAO report uses locally assigned codes to accumulate costs for managerial purposes.

The WANG is not intended to duplicate the efforts of IDA-11B. Rather, the active files on the local memorandum records should only contain the documents for which an

expenditure has not been recorded. Once the expenditure is recorded on the IDA-IIB, the document should be taken out of the Original Document File and placed in the Original Document History File. Hence, the sum of the transactions reflected in the Original Document File and the transactions in the Original Document History File equates to the total funds obligated and expended to date. The relationships within the WANG files can be illustrated with the following equation:

$$\begin{aligned} & \text{Transactions in the Original Document File} \\ + & \text{Transactions in the Original Document History File} \\ = & \text{Total Obligated and Expended Funds} \end{aligned}$$

Subtracting the total obligated and expended funds from the total funds authorized for a particular job order will then yield the net available funds.

$$\begin{aligned} & \text{Job Order Master Authorization File} \\ - & \text{Total Obligated and Expended Funds} \\ = & \text{Net Available Funds Listed in Job Master Authorization File} \end{aligned}$$

If the transactions which have been entered into the IDA-IIB records are reconciled with those which appear only on the WANG, this will yield the total funds obligated and expended, just as a checking account is reconciled using a checkbook and a bank statement.

Obligations Reflected Only on the WANG
+ Obligations and Expenditures on IDA-IIB's Transaction Listing
= Total Funds Obligated or Expended

Therefore, on a monthly basis, i.e. at the end of a reporting period, the two sets of records will be reconcilable, enabling the Comptroller's Office personnel to look for possible errors.

The Comptroller's Research Report is divided into two sections, covering those items still in the Original Document File (See Figure 15.) and those in the History File (Figure 16). Information in excess of that presented on the RAU report is presented, however, PI's have found the format harder to use. The top section of the Comptroller's report is devoted to information identifying the specific account, the total amount of funds contained in the original authorization, estimated direct labor costs from the budget page, and the indirect costs removed from the fund. These can be used to find the actual authorized funds available to the PI. This figure, less the obligations reflected in the Original Document and History files and the labor reservations, where appropriate, yields the net available funds for that account.

The lower portion of this report gives the details for each individual transaction, referencing the segment, job order, purchase order and document number, the expense

NAVAL POSTGRADUATE SCHOOL COMPTROLLER'S OFFICE (CCE)				REIMBURSABLE FUND STATUS		REPORT DATE 31/11/21	
PRINCIPLE INVEST		JOB OFFER	EXP DATE	OCC #/S	AUTHORIZED	332,000	ACT JUTH
SARPKAY, T.		RULSL	25/11/20	5141 - 5146	DIRECT LABOR	325,120	OBLIGATED
TITLE					IND COST (LABOR)	51,122	SUBTOTAL
FORTEX-INDUCED DISTURBANCES ON FLUID INTERFACES					IND COST (CHAIR)	32,615	LABOR RES
							NET AVAIL
							31,119.90
DEPT	MECHANICAL ENG DEPT	59	COST	SOURCE	ANALYST ext.2357		
320	JO #	JOC #	EE	DESCRIPTION	P. O. #	ROD	ESTIMATE
1L60 /4	RULSL	6220-5142	TS	WILL			3429.08
1L60 /4	RULSL	6223-5143	TS	SLIDES			1800.00
1L60 /4	RULSL	5253-5144	4M	TCSMIRA PRINTER	N6227155M3414		1495.00
1L60 /4	RULSL		TX		N6227186A00035331		30.00
1L60 /4	RULSL	4PR	UU	LABOR THU APR 96			33,200.48
1L60 /4	RULSL	JUL	UU	LABOR FOR JUL 96			32,305.55
1L60 /4	RULSL	JUN	UU	JUNE LABOR			38,973.36
1L60 /4	RULSL	MAY	UU	MAY LABOR			16,379.80
1L60 /4	RULSL	SEPT	UU	SEPT LABOR 1996			336.26

TOTAL FOR ACTIVE OCCUMENTS 122,003.13

Figure 15. Reimbursable Funds Status Report

NAVAL POSTGRADUATE SCHOOL		Report Date :86/09/30	
COMPTROLLER'S OFFICE (002)		Last Revision Date :86/09/30	
<div style="display: flex; justify-content: space-between;"> <div> <p>-----</p> <p>F Y 8 6 R E I M B U R S A B L E M I S T O R Y</p> <p>-----</p> </div> <div> <p>-----</p> <p>MECHANICAL ENG DEPT VORTEX-INDUCED DISTURBANCES ON FLUID INTERFACES</p> <p>-----</p> </div> </div>			
JD #	SEG	PRINCIPLE INVEST	TITLE
RULSL	UL60	0023.3	69
DOCUMENT #	EE	DESCRIPTION	P.O. #
6078-6141	TS	SOFTWARE	N622718641351
6112-6142	TS	DISKETTES	N622718642229
6135-6143	TS	VENTILATOR	N6227186400460011
6161-6144	TS	OILERS	
6190-6145	TS	INDUSTRIAL FOAM	N622718642875
6198-6146	TS	CO-PROCESSOR	N622718640916
6209-6147	WM	BOOK-N. OLNDFF	N622718643126
		ADD	ESTIMATE
		OBLIGATED	EXPENDED
		\$1,584.00	\$1,584.00
		\$725.00	\$725.00
		\$98.50	\$98.50
		\$61.67	\$61.67
		\$320.80	\$320.80
		\$244.00	\$244.00
		\$90.00	\$90.00
			\$3,123.97

Subtotals for RULSL

Figure 16. FY86 Reimbursable History

element, a description of the item, the required delivery date, obligated amount and current status. The obligated and current status columns should equal each other if all price changes have been entered. Sub-totals are also given for all active files and the history file, which sum to the obligated figure on the top right corner of the report.

In short, this system's reporting capabilities are potentially versatile enough to meet management's informational needs. However, the amount of time required to prepare and print the additional reports that research personnel and administration require is prohibitive. Currently, this report is only being used internally by the Comptroller Department and to update price information in the RAU records. Other user needs for accounting data are met via the more familiar RAU report.

NAVPGSCOL management monitors the activity's financial status on a daily basis through the Local Management Code (LMC) report. Additional reports are prepared which aggregate the data already discussed in different formats.

5. AAA's Official Records

AAA utilizes the Resource Management System (RMS) on the IDA-11B software package to track NAVPGSCOL funds. RMS was discussed in Chapter II of this thesis. RMS provides

four reports for management purposes, as follows: (Ref. 9:pp. 30 and 41)

a. Uniform Management Report (UMR) "C".

This report can be prepared for either the individual cost centers or the entire responsibility center. It gives the status to date by SAG, FC/SFC, and CAC, man-hours, labor expenses and various expense categories. Since it contains basically the same data as the annual budget submission, it can be also be used to analyze performance. (See Figure 17)

b. Performance Statement (NAVCOMPT 2169).

This report compares the cumulative accrued expenses and the work units by SAG, FC/SFC, and CAC by cost center to the annual budget by each category. The intent is to allow managers to compare expenses to income provided in the form of NAVPGSCOL's OPBUD and reimbursable job orders. (See Figure 18.)

c. Sub-Activity/Functional Category/Expense Element Report (NAVCOMPT 2171).

This report is prepared monthly, showing data aggregated by SAG, FC/SFC, and EE, both for one month and for the fiscal year to date. It gives gross adjusted obligations and expenses within each appropriation. (See Figure 19.)

PERFORMANCE STATEMENT

FROM		TO		NAVCOMPT DATE		FOR PERIOD		DATE OF REPORT	
Navy Regional Florence Center Washington, D.C. UIC 85872		Navel Audiovisual Center Washington, D.C. UIC 82844		1731804.1190		30 October 1982		15 November 1982	
Navel Audiovisual Center Washington, D.C. UIC 82844		Chief of Naval Operations Washington, D.C. UIC 00011		Responsibility Center		15 November 1982		15 November 1982	
SAG	ACTIVITY	DESCRIPTION	ACTIVITY	ACTIVITY	ACTIVITY	ACTIVITY	ACTIVITY	ACTIVITY	ACTIVITY
(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
FF	D1	Command and Staff	38,996	455,952	8	60	720	8	633.26
FF	D1	Leave, Annual	38,996	455,952	8	60	720	8	633.26
FF	D1	Leave, Annual and Sick	1,000						
FF	D1	Leave Acceleration	(3,871)						
FF	D1	Command and Staff	(2,871)						
FF	D2	Command and Staff	250	3,000	8	1	12	8	250.00
FF	D2	Keypunch	250	3,000	8	1	12	8	250.00
FF	D2	Clerical	100	1,200	8	1	12	8	100.00
FF	D2	Subtotal D1	200	2,400	8	2	24	8	100.00
FF	D2	Subtotal D2	300	3,600	8	3	36	8	100.00
FF	D2	Total D	36,125						
FF	M1	Training	36,675	24,000	8	20	240	8	100.00
FF	M1	Subtotal M1	2,000	24,000	8				
FF	M1	Total M	2,000						
FF	M1	Responsibility Center Total	38,675						
NOTE: Asterisks (*) denote the level of data to be reported on the detail card submitted by mechanized authorization accounting activities or Financial Information Processing Centers.									

Figure 18. Performance Statement. (NAVCOMPT 2169)

CHARGEABLE UIC				EXPENSE ELEMENT TOTAL SUPPLEMENTAL REPORT				APPROPRIATION		FOR PERIOD ENDING	
NAVJAGSOL				CHARGEABLE UIC				APPROPRIATION		FOR PERIOD ENDING	
MONTPELIER CA 93040				62271				17771005-118C		28 FEB 1987	
UIC 62271				YEAR TO DATE EXPENSES				YEAR TO DATE GROSS OBLIGATIONS			
				REIMBURSABLE		TOTAL		DIRECT		REIMBURSABLE	
				EF	DIRECT	TOTAL				TOTAL	
CA	E			709.93		709.93				709.93	
FA	P			7,397.22		7,397.22				7,397.22	
FA	P			33,326.97		33,326.97				33,326.97	
FA	P			19,669.15		19,669.15				19,669.15	
FA	P			41,897.87		41,897.87				41,897.87	
FA	P			41,897.87		41,897.87				41,897.87	
FA	P			571,928.13		571,928.13				571,928.13	
FA	P			217,976.51		217,976.51				217,976.51	
FA	P			5,710.45		5,710.45				5,710.45	
FA	P			6,918.60		6,918.60				6,918.60	
FA	P			756,771.32		756,771.32				756,771.32	
OTAL				294,331.29		294,331.29				294,331.29	
CA	E			1,742.88		1,742.88				1,742.88	
CA	E			527.67		527.67				527.67	
CA	E			33,975.43		33,975.43				33,975.43	
CA	E			43,156.56		43,156.56				43,156.56	
OTAL				2,748.22		2,748.22				2,748.22	
CA	E			315,269.59		315,269.59				315,269.59	
CA	E			1,733.63		1,733.63				1,733.63	
CA	E			60,916.41		60,916.41				60,916.41	
CA	E			1,802,810.32		1,802,810.32				1,802,810.32	
OTAL				12.30		12.30				12.30	
CA	E			840.00		840.00				840.00	
CA	E			23,731.02		23,731.02				23,731.02	
CA	E			42,634.98		42,634.98				42,634.98	
CA	E			7,591.78		7,591.78				7,591.78	
CA	E			430,225.31		430,225.31				430,225.31	
CA	E			1,893.10		1,893.10				1,893.10	
CA	E			67.50		67.50				67.50	
OTAL				181,243.81		181,243.81				181,243.81	
CA	E			479,693.75		479,693.75				479,693.75	
CA	E			32,114.21		32,114.21				32,114.21	
CA	E			133.97		133.97				133.97	
CA	E			454.57		454.57				454.57	
CA	E			74,312.15		74,312.15				74,312.15	
CA	E			4,697.77		4,697.77				4,697.77	
CA	E			593,612.19		593,612.19				593,612.19	
CA	E			33.97		33.97				33.97	
OTAL				1,178,073.34		1,178,073.34				1,178,073.34	
CA	E			125,892.12		125,892.12				125,892.12	
CA	E			3,597.64		3,597.64				3,597.64	
OTAL				1,307,562.10		1,307,562.10				1,307,562.10	

Figure 19. Subactivity/Functional Category/
Expense Element Report (NAVCOMPT 2171)

d. Trial Balance Report (NAVCOMPT 2199).

This position report is prepared on a monthly basis to show the financial status of the command. It reflects the balances in the General Ledger Accounts, grouped under assets, liabilities, investments, expenses, and income, as well as memorandum and budgetary and statistical categories. (See Figure 20.) NAVPGSCOL management monitors this information daily, by accessing the current status on IDA-IIB.

AAA also provides reports from the Uniform Management Reporting System, which are used on a daily basis by the budget analysts with the local memorandum system. The role of the Transaction Listing (Figure 21) was addressed in detail in subsections B. and C.4. of this chapter. The Document Control File Report (Figure 22) lists all outstanding documents, i.e. those which have had only partial payment applied or have not been liquidated.

The Reimbursable Work Order File Report (Figure 23) shows the amount authorized for a particular job, expenses incurred, unfilled orders, amount earned and collected, the accounts receivable, expended, and obligated, and the balance remaining. The Job Cost Status Report, on the other hand, goes into much greater detail in this same

0-0493	TRIAL BALANCE REPORT				NAVCOMPT FORM 2194		PAGE	
APPR 1761804.1180	RE		FOR PERIOD ENDING 30 SEP 86					
FROM 00228	FOR 62271 N		TO		FOR			
OSC OAKLAND, CALIFORNIA								
ACCOUNT NUMBER AND TITLE		BALANCES PRIOR MONTH DEBIT CREDIT		BALANCES CURRENT MONTH DEBIT CREDIT		CHANGES FOR PERIOD DEBIT CREDIT		
---ASSETS---								
1000 FUNDS DISBURSED				1,788.29				
1100 ACCOUNTS RECEIVABLE US GOV AGEN		2,394.39				1,449.23		
1122 U/S AUTO UNBILLED OTH DEF APPN		4,348.29				1,449.23		
1127 U/S AUTO UNBILLED OTH DEF APPN				2,193.70				
1810 REIMBURSABLE ORRERS SCV9 AUTO		3,753.79				2,193.70		
1812 U/S SCV9 AUTO OTH DEF APPN		2,780.00						
1817 U/S SCV9 AUTO OTH DEF APPN		2,193.70				2,193.70		
TOTAL ASSETS		10,560.17		4,192.99		7,443.32		
---LIABILITIES---								
2000 ACCTS PAYABLE-US GOV AGENCIES				403.90				
2010 ACCTS PAYABLE-US GOV AGENCIES		403.90				403.90		
2100 ACCTS PAYABLE-PUBLIC				3,363.32				
2140 ACCTS PAY-PUBLIC				3,363.32				
TOTAL LIABILITIES		403.90		3,363.32		403.90		
---INVESTMENTS---								
3110 UNCOMMODAL INVESTING PER				3,339.11				
3311 ACCRUED EXPENSES CONTRA		2,194.39				1,449.23		
3320 ACCRUED EXPENSES-RETRN PROGRAM				2,339.29				
TOTAL INVESTMENTS		2,194.39		3,753.70		1,449.23		
						5,132.16		
						3,363.32		
						4,167.64		
---INCOME---								
4010 INCOME-AUTOMATIC				2,194.39				
4012 INCOME AUTO OTH DEF APPN				4,348.29				
4017 INCOME AUTO OTH DEF APPN		2,193.70				2,193.70		
TOTAL INCOME		2,193.70		4,348.29		2,193.70		
						724.47		
						3,843.32		

0-0493	TRIAL BALANCE REPORT				NAVCOMPT FORM 2194		PAGE 2	
APPR 1761804.1180	RE		FOR PERIOD ENDING 30 SEP 86					
FROM 00228	FOR 62271 N		TO		FOR			
OSC OAKLAND, CALIFORNIA								
ACCOUNT NUMBER AND TITLE		BALANCES PRIOR MONTH DEBIT CREDIT		BALANCES CURRENT MONTH DEBIT CREDIT		CHANGES FOR PERIOD DEBIT CREDIT		
---EXPENSES---								
5010 COST-OTHER FOR OTHERS-UNCLASSIFIED		2,194.39				1,449.23		
TOTAL EXPENSES		2,194.39				1,449.23		
						3,163.32		
---GENERAL-ACCOUNTS---								
9992 SUBMITTER EXP-MAIL REIMB PER		3,339.11				3,339.11		
9993 GENERAL-ACCOUNTS-RETRN PER				5,753.70		2,193.70		
TOTAL GENERAL-ACCOUNTS		3,339.11		5,753.70		2,193.70		
						3,363.32		
GRAND TOTALS		20,433.79		20,463.98		14,107.23		
						14,107.23		
						13,455.29		
						13,455.29		
---STATISTICAL---								
0030 FINANCIAL-GENERAL-ACCOUNTS				403.90				
0999 GROSS ASSET OBLIG-AUTO REIMB PER		2,194.39				1,449.23		
TOTAL STATISTICAL		2,194.39		403.90		1,449.23		
						3,363.32		

Figure 20. Trial Balance Report (NAVCOMPT 2199)

area, permitting data to be extracted concerning the various elements of labor, supplies, travel, and material expended both cumulatively and for that month.

These reports are used by the Comptroller's Office personnel to balance the local memorandum records with the official ones. This process consists of first comparing the WANG generated balances to the Trial Balance report. If there is some discrepancy, the UMR Report "C" (responsibility and cost center) and the RMS SAG/FC/EE report is reviewed to determine which SAG is in error. Next, the expense elements are checked; and finally the appropriate document is found in the IDA History file and compared to the original. Typically, this process requires about one week to complete at the end of the fiscal year.

D. INTERNAL CONTROL AND INTERNAL REVIEW PROGRAMS

Chapter II of this thesis outlined the general and specific standards of internal control. It noted that internal controls must be instituted by management and aggressively supported by all personnel if they are to be successful. Internal review is then charged with determining what internal controls are in place, whether or not they are adequate, and whether or not additional controls are required.

Recent audits have demonstrated command weaknesses in the internal control and internal review areas. Internal

controls have not been utilized properly or, in some cases, are missing altogether. Thus, the safety of assets, accuracy of accounting records, and propriety of resource management may be questioned. Further, the internal review function in recent years was relegated to a part-time Internal Review Board. The auditors have now deemed this to be inadequate.

A new Internal Control program is currently being implemented. Management has been informed of the details of the program, assessable units have been inventoried and vulnerability assessments have been conducted to date. The results of the vulnerability assessments are presently being compiled and will be reissued to managers to assist in the Management Control Reviews which are scheduled to be conducted later this year. Additionally, manpower augmentations have been made in certain areas, as it was recognized by the auditors that insufficient personnel had caused much of the breakdown in the command's internal controls.

Thus far, the Internal Review area has been started and organized. Currently, the primary areas of concern are following up on the results of various audits and implementing the new Internal Review program.

Auditors also noted numerous errors in the Comptroller's research accounts. It was specifically recognized that the complexity of research reimbursable funding and accounting,

coupled with its entrepreneurial nature, made proper management of these resources difficult.

IV. DIRECT FUNDING OF RESEARCH

Chapter II discussed direct funding, whereby an activity receives various allotments of funds from its major claimant through either Allotment/Suballotment Authorizations or, in the case of O&M,N funds, a Resource Authorization. Intended to be an activity's primary source of funds, direct funding supports the costs incurred in accomplishing that activity's mission.

Research is a part of NAVPGSCOL's mission; hence, it has been decided to fund all DoN research through the school's operating budget, beginning in FY88. Initially, this was to have been accomplished through the transfer of a block of funds from activities sponsoring research to NAVPGSCOL's OPBUD. The funds would have been transferred primarily from the RDT&E appropriation. The DoN Budget Markup Justification stated that

the change would require a realignment of resources from DoN "customer budgets" to the NPS. Those claimants whose funds are transferred, will be entitled to a commensurate level of research from NPS had the service been performed on a reimbursable basis. [Ref. 27:p. BA-8-4]

During the initial (DoN) reclama process, however, it was argued that this would be inappropriate. Most of NAVPGSCOL's research efforts are devoted to specific development and research projects, rather than to the continuing, long-term, general tasks for which RDT&E monies are suitable

[Ref. 26:p. 2]. It was subsequently determined that DoN research would indeed be directly funded through NAVPGSCOL's OPBUD, but that the money would not be obtained from research sponsor's budgets.

The purpose of this chapter is to discuss direct funding and its anticipated impact on research at NAVPGSCOL.

Accordingly, it will

- A) Discuss the implications of direct funding,
- B) Detail direct funding procedures,
- C) Outline the method by which DoN sponsors will receive their allocations of the total budgeted research effort,
- D) Review the limitations on non-DoN research, and
- E) Recognize the importance of the research program.

A. IMPLICATIONS OF DIRECT RESEARCH FUNDING

NAVPGSCOL's research program has grown substantially since its inception, with funds increasing from approximately \$2.6 million in FY71 to \$16.9 million in FY86. The total size of the research program has been determined on a yearly basis by customer needs and NAVPGSCOL's manpower limitations. Research funds have been received from a variety of independent sources, with each sponsor reviewing the quality and purpose of individual research proposals in order to determine whether a particular endeavor was worth pursuing, given the amount of funds required.

Research was initially a relatively small program. Since it was funded reimbursably, there was no procedural requirement to justify the magnitude, direction and scope of the total program to budgeteers. However, this will occur automatically during the POM process in the case of directly-funded programs. Research now comprises a significant portion of NAVPGSCOL's total annual obligational authority. The decision to directly fund research ensures that an explicit determination will be made in the future concerning the total amount of research to be accomplished in a given year and its applicability to DoN interests.

Direct funding of research will have additional ramifications as follows:

- a) Currently, research proposals are accepted throughout the year, with sponsors reclaiming any unspent portions of the funds which they provide. The actual magnitude of any year's program is therefore uncertain until the end of the fiscal year. Under direct funding, research monies are part of NAVPGSCOL's OPBUD and are not recoverable by sponsors. This will increase the stability of funding and thereby enable total research to be better planned. Direct funding will also place an upper limit on total research funding.
- b) Data are presently encoded in the official records so that IDA-11B reports are generated for all reimbursables, rather than just research. Hence, "pure" information about research reimbursables is available only through the local memorandum accounts kept by the Comptroller and RAU. Accounting for research job orders is complicated by the fact that a given job may be funded by both investment and expense-type appropriations. This requires that careful attention be paid to each FR and budget page to avoid funds being spent inappropriately. Local financial review and control of research reimbursables is thus a very difficult and labor intensive process for Comptroller Office personnel.

The bulk of research spending will be funded by O&M,N, and this information will be readily displayed on the UMR "C" report either for each individual job account or for the total research program. Investment items will be separately accounted for under the OP,N allotment and will be easily tracked, in view of the relatively small number of large purchases involved. The changes in accounting practices which will occur under direct funding should tend to heighten visibility of DoN research projects, as well as the overall program, and, hence, potentially increase overall financial control.

B. DIRECT FUNDING PROCEDURES

1. Research Programming and Budget Formulation.

The FY 1988/1989 budget submission was adjusted during the DoN budget review in accordance with the direct funding concept. However, in the future, NAVPGSCOL will participate in the Program Objective Memorandum (POM) process in order to obtain research funding. [Ref. 28]

SECNAVINST 7040 outlines the new funding procedures, stating in part that

for future fiscal years, requirements will be submitted by the Superintendent of NAVPGSCOL to the OPNAV resource sponsor during POM development. These requirements, identified by research sponsor, will be reviewed jointly by the resource sponsor, the Office of Research, Development and Acquisition (OP-098) and the research sponsors. The agreed upon resource level will be included in the Sponsor

Program Proposal (SPP) for further consideration in the POM process ...The level of research funding included in the POM for NAVPGSCOL will also be highlighted as a special interest item during the POM presentation to CNO, CMC, and SECNAV. [Ref. 2:p. 2]

a. Planning, Programming and Budgeting System (PPBS)

The Planning, Programming and Budgeting System is a decision-making process for allocating defense resources. . .[which] through an iterative process moves from broad planning considerations to more definitive program objectives, to finally specific budget estimates which price out the programs [Ref. 7:p. A-9].

The end result of the almost two year long PPBS cycle is DoD's input to the Federal Budgetary Process.

The POM process occurs during the Programming phase of PPBS. During POM Development and Review, DoD establishes which programs, out of all the available alternatives, will best accomplish it's goals and then determines the appropriate level of resources for each of those programs.

b. POM Development

Each service is tasked to prepare its own POM independently during the POM development stage. Over the course of several months (July through April), program issues and alternatives are identified and resolved, taking into consideration the fiscal and manpower constraints which have been imposed on the service and the military capabilities or potential threats. If, for example, DoD required research in Weapons Targeting Methods, two possible alternatives considered

might be lasers and radar. One or both programs might be initially selected.

The final stage in POM development, or the "End Game" consists of iterative tradeoffs between programs, compensating for any price changes that may have occurred in acquisition packages and using appropriation controls to balance the service's POM and increase it's overall feasibility as a budget submission. [Ref. 7:p. A-12] Continuing the previous example, if both programs in lasers and radar were originally supported, during the "End Game" one program might be cut in favor of the other; or the Budget Estimate for both programs might be increased, with some other program being cut. Similarly, NAVPGSCOL's overall research program will be in competition with other programs, including research programs, during the POM process.

c. POM Review

The service POM's are compared to each other during the DoD POM Review, which is conducted from May through the beginning of August. (See Figure 24.) This is intended to balance the efforts of the various services, so that all the objectives of the overall defense strategy are met. The resulting SECDEF's Program Decision Memorandum (PDM) addresses the approved force levels, system acquisitions, and rates and levels of support for all DoD programs. The PDM will then form the basis for budget formulation during the

DOD PPBS: POM REVIEW PROCESS

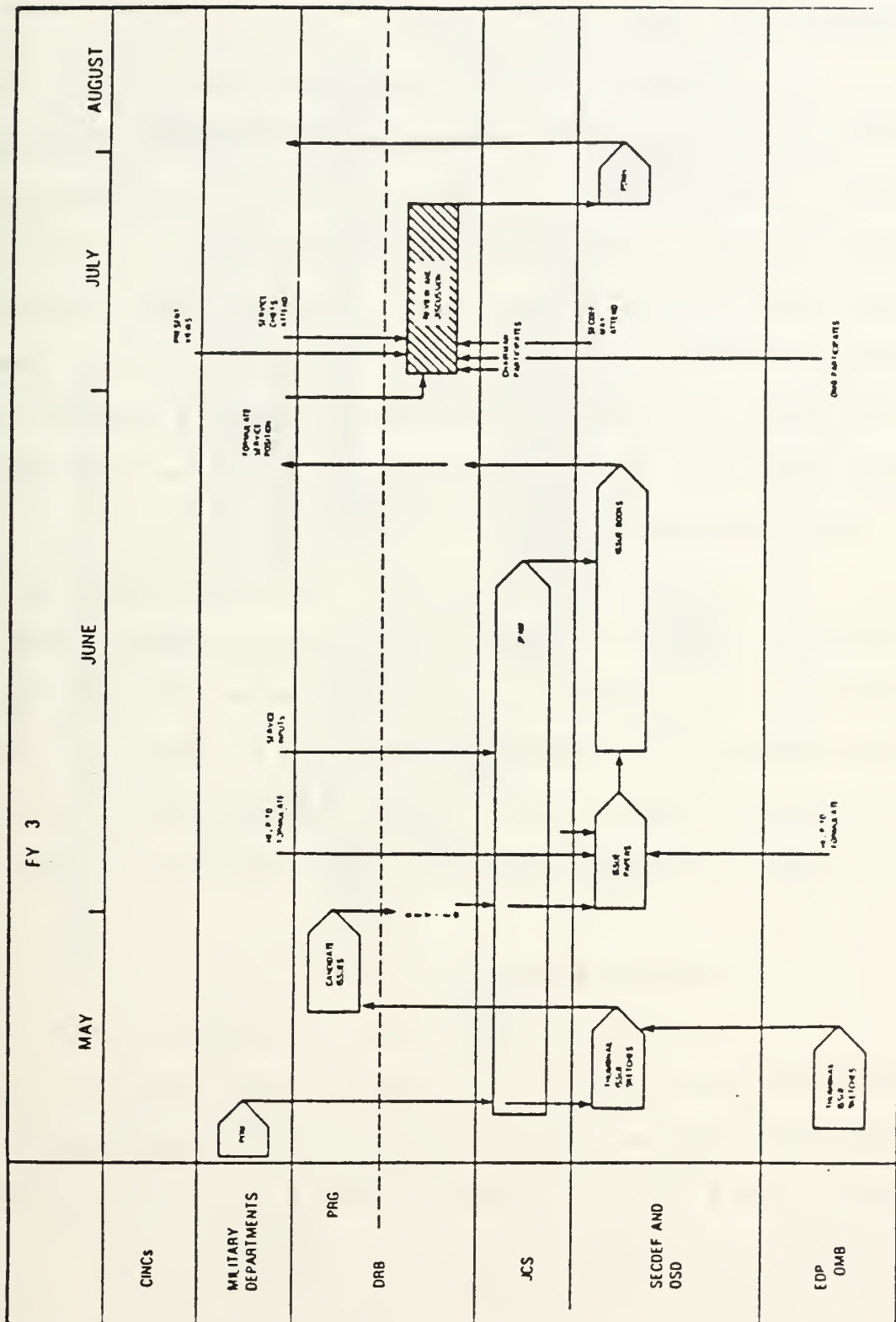


Figure 24. DoD POM Review

Budgeting phase of PPBS, which commences in August. (See Figure 25.) [Ref. 7:p. A-13]

SECNAVINST 7040 also specifies that the Graduate Education Review Group (GERG) and the Graduate Education Review Board (GERB) will be required to review the programmed allocation of resources, by research sponsor. To date, this has not occurred. Hence, it is not fully clear how the GERG and the GERB will execute their duties. However, these entities will probably evaluate the overall research program and advise the school regarding the scope and applicability of the research undertaken. [Ref. 28]

Once the total amount of research and its distribution by research sponsor have been programmed, these figures will be used as the basis for developing and reviewing the budget during the budgeting phase of PPBS. Any significant changes made during the budgeting process will require the prior approval of the CNO, CMC, and SECNAV. [Ref. 2:p. 2]

2. Budget Execution.

NAVPGSCOL will receive a block of O&M,N funds designated specifically to cover all the direct and indirect costs of budgeted DoN research. Separate charges for indirect costs will no longer be made for government sponsored research. [Ref. 30]

DEPARTMENT OF THE NAVY PPBS: BUDGET FORMULATION PHASE

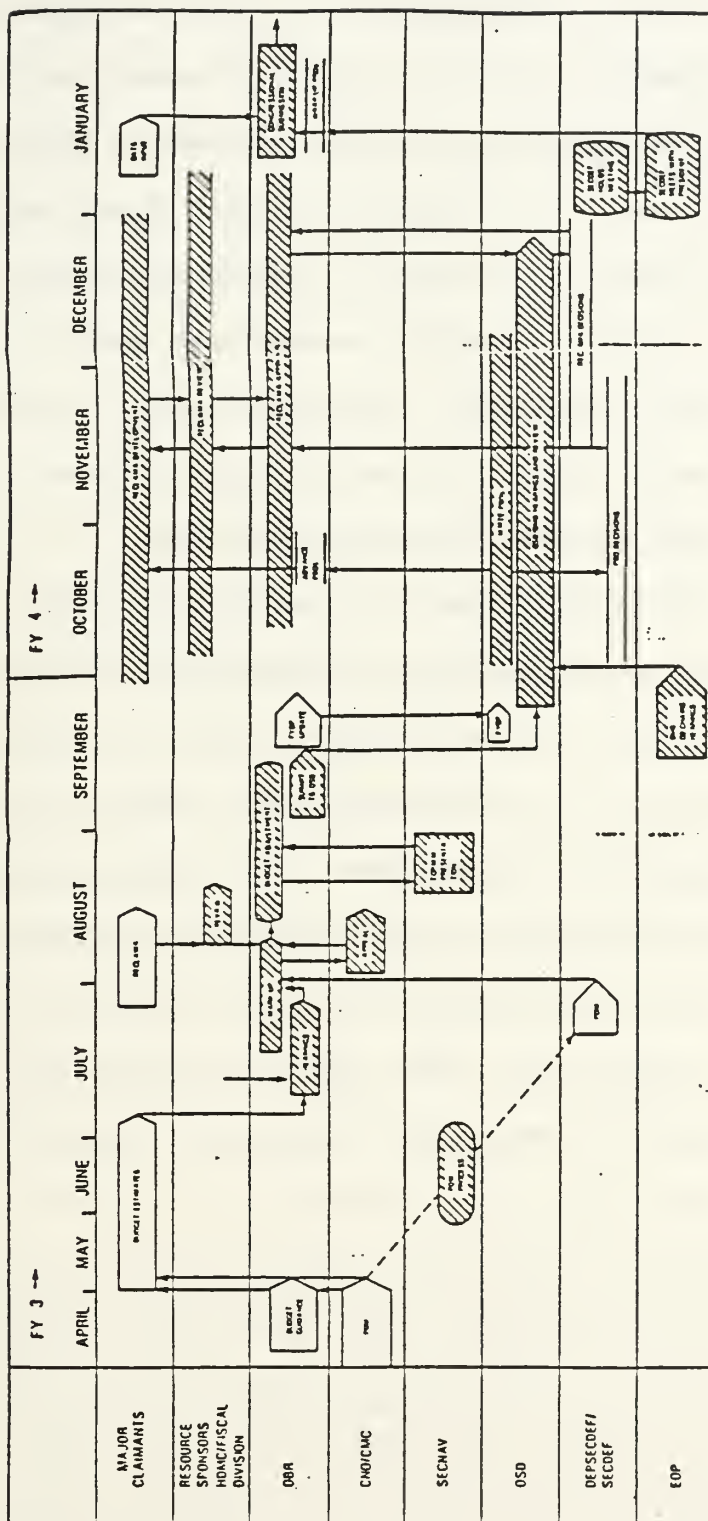


Figure 25. DoN Budget Formulation

While these funds will be included within NAVPGSCOL's OPBUD, they will be allocated quarterly in accordance with the spending plan and will be available for expenditure only after the project is approved. [Ref. 29:p. 7] Hence, the actual availability of these funds for obligation will be contingent upon the review and approval of proposed projects by the research sponsors. [Ref. 2:p. 2] O&M,N funds will be supplemented by sufficient OP.N funds for necessary equipment purchases to be made.

Fifteen percent of the total O&M,N monies have been identified as the Superintendent's discretionary funds and will be used for projects approved locally by NAVPGSCOL. This corresponds to the funding previously known as the Research Foundation Funds. The major distinction between the projects using these funds and the remainder of the O&M,N monies is that these can be altered, canceled or have substitutions made, with local approval. Changes to other projects will require the prior approval of the research sponsor. [Ref. 2:p. 2]

C. ALLOCATION OF RESEARCH EFFORT TO DoN SPONSORS

The initial allocation of research effort made for FY 1988/1989 to sponsors was based upon the level of research that had been previously planned. [Ref. 2:p. 2] It is not entirely clear, as yet, what procedures will be used to determine this in future years.

SECNAVINST 7040 [Ref. 2] presently states that NAVPGSCOL will be required annually to propose a research activity level for each research sponsor. This level will be reestablished each year by NAVPGSCOL on the basis of the amount of research conducted for the sponsor in the past and the content of the Letters of Intent (LOI's) filed by faculty for the upcoming year. [Ref. 29:p. 6] LOI's are forms which announce the intent of faculty members and departments to submit research proposals. As noted in section B. of this chapter, the proposed research levels will be reviewed by NAVPGSCOL's resource sponsor, OP-098, and by the appropriate research sponsor during the POM development process. [Ref. 28:p. 1]

It is recognized that some DoN activities that are not presently sponsoring research may wish to do so in the future. A part of the total research funds will therefore be available for allocation to new sponsors. If not needed for new projects, this effort will be reallocated by NAVPGSCOL to existing sponsors.

Sponsors can also request that their research level be changed for the following year. The total size of the research program will be determined by the GERB, GERG, and the POM reviews. (See section B. of this chapter.) Sponsors' requests for additional NAVPGSCOL research will tend to support the importance of the NAVPGSCOL research program

in relationship to other Navy programs. This should increase the total amount of resources budgeted for it.

This does not ensure that the sponsor requesting additional research will necessarily be granted the entirety of that request. The way in which research effort is actually distributed will be decided, on an annual basis, by the nature of the faculty's LOI's and research proposals. Hence, a sponsor can best obtain additional research support by bringing areas of interest to the attention of faculty who may subsequently submit proposals. [Ref. 29:p. 6] Further DoN projects may be undertaken later, provided that Navy research funds have not been fully committed and there are sufficient manpower assets available.

D. NON-DoN RESEARCH ALLOCATIONS

NAVPGSCOL has also done a significant amount of research for non-DoN sponsors in the past. Direct funding will not terminate those relationships, but the procedures used will change significantly. Reimbursement will be made by government sponsors on the basis of direct costs, with indirect cost charges no longer being utilized.

An estimate of the reimbursable budget required to accomplish non-DoN research will be submitted annually. The School will also be authorized to accept additional research projects on a reimbursable basis for DoD and to support other national needs. Costs of such additional research

projects are not to exceed 10 percent of the total budgeted reimbursable level of research. [Ref. 2:p. 3]

Manpower and funding resources are limited, and it is recognized that the majority of research effort will be allocated to DoN research. Nevertheless, it is intended that established relationships between NAVPGSCOL PI's and non-DoN research sponsors will be preserved and new work undertaken as NAVPGSCOL resources permit. [Ref. 29:p. 6]

E. CONCLUSION

The criticality of research to DoN cannot be over-emphasized. As James Forrestal said during his tenure as the Secretary of the Navy (1944-1947), in justification of Naval research

. . .it is even more important in peace than it is in war for scientists to contribute to basic military research. Wars are fought primarily with weapons which were developed before the fighting began...Research requires time. Application of its results absorbs more time. . .If a weapon is to be employed during a war, the fundamental research underlying it must have been conducted over a protracted period before the war. [Ref. 31:p. 18]

Current naval leaders are equally sensitive to the need for a strong, ongoing research program. The fact that research is being directly funded is indicative of the high level of interest in this area.

V. AN ANALYSIS OF RESEARCH ACCOUNTING INFORMATION REQUIRED BY USERS

Chapter IV of this thesis noted that funding NAVPGSCOL research directly through the POM process will greatly increase the visibility of the program. Changes will be required in the supporting accounting systems. Additionally, the roles and responsibilities of the various participants will be affected. Clearly, this will also modify the information needs of users.

The purpose of this chapter is to outline the accounting information which will be required by users under direct funding. Accordingly, it will discuss the data needs of the

- A. Academic Departments, including PI's,
- B. Research Administration Office,
- C. Comptroller,
- D. AAA,
- E. Research Sponsor, and
- F. Activities Involved with POM Development and Review.

A. ACADEMIC DEPARTMENTS

1. Principal Investigators

PI's conceptualize research projects, translating ideas into productive areas of investigation. Responsible for planning the project, determining the funds required,

and then spending funds in accordance with the approved proposal; they carry the initial fiscal responsibility.

Generally speaking, PI's need to know what the unobligated balance is in an account at any given time, any limitations that may exist on the use of the funds, and the funds' expiration date. This permits the PI to plan when and how the remaining funds will be obligated, and either request additional funds or, in the case of reimbursables, return unneeded monies, as the situation demands.

PI's were queried concerning their specific needs. Based on a sample of six of the most active PI's, the following was determined:

- a. RAO currently generates research reports bi-weekly for the PI's and Department Chairman. (See figure 14 and Chapter III, subsection C.3.) Each of the information items contained on that report was considered necessary by the PI's surveyed.

PI's found the 10% buffer funds (reserved in the RAO accounts to allow for price changes) column in the RAO Report to be particularly useful, as it enabled them to find how much money was being kept back and to regain the use of these funds by updating RAO's records to reflect known actual prices. The item description column was critical in that users could quickly scan for expenditures improperly charged to this account and determine which transactions had been entered into the accounting system. The recorded balance was also compared closely to the PI's records, especially as the funds' expiration date grew near.

The RAO's report periodicity was generally considered adequate by the PI's. One PI stated a preference for weekly reports from mid-May until the end of the fiscal year, as there is a great deal of spending activity during that time. It should be noted that RAO presently generates reports on a weekly basis during the last few months of the fiscal year.

Another PI stated that, since managing the large amount of funds for his research group's projects required daily account balances, his research group had devised its own PC accounting system. All PI's noted with pleasure that special reports could be obtained, by request and on short notice, from RAO. Similarly, balances were available by phone for separate accounts.

RAO reports were described by five of the six PI's surveyed as accurate, i.e., as reflecting the appropriate transactions. The other PI did not comment. However, all of the PI's found the currency of the information lacking. Transactions are entered into the RAO accounts on the same day they are received. As RAO is not within the official accounting system, however, it would frequently take 2-3 months for price change data to be reflected and 10% buffer funds made available for obligation. Busy time periods noticeably reduced the timeliness of the price change data reflected in the report. Additional information concerning required delivery dates for items ordered was requested by one PI, while two others found the purchase order number desirable.

PI's found the RAO report format useful and convenient. The Comptroller report format was less easily understood. As two PI's noted, the item description on the Comptroller's report sometimes did not contain enough data (for example, when the term "book" was used) for a specific transaction to be identified.

- b. Generally, PI's were comfortable with and accustomed to the RAO report. However, it was mentioned by four PI's that the RAO and the Comptroller's practices of preparing research reports on two separate systems was redundant. Citing rationales such as decreasing costs and increasing administrative efficiency, one PI suggested that only one report be prepared in future, based on the inputs of the Comptroller and RAO. Two of the PI's did not specify what action they felt should be taken. However, they stated that dual efforts were unnecessary and, therefore, either a unified system should be instituted in the future or only one of the systems continued. The fourth PI felt that the Comptroller, as the Navy's official memorandum accounts keeper, should maintain local records, with RAO working on the basis of the Comptroller's reports.

- c. An online database was cited as the preferred method of receiving account status by four PI's. One PI further requested that the supply status be reflected online. Another PI felt that it would be useful to be able to determine where an item was in the internal processing system. No desired online formats were stated, although one PI specifically did not want reports to reflect the difference between planned and actual expenditures. The reason cited was that he did not want an increase in bureaucratic oversight of research projects.
- d. Reserving the total labor cost, based on the budget page, and reflecting this in future reports was noted as a useful planning tool which two PI's would like to see implemented.
- e. One PI preferred that all data concerning a particular trip or purchase be grouped together, rather than being displayed in chronological order.

2. Department Administrative Assistants.

AA's maintain current balances on all research accounts in their department. They require a research report which contains sufficient detail about each individual transaction to allow them to balance the report with their department accounts and reveal any discrepancies that may occur. In the process, internal control over the validity and completeness of both the RAU and the department accounts is enhanced. AA's use all the information items presently listed on the RAU report in their accounting function.

Five of the eight AA's sampled compared the RAU report routinely to their own accounts by line item, whereas the remainder do so whenever the PI's spot errors or the balances are incorrect. Three of the AA's notify RAU or price changes as discrepancies are noted on the research

report, while the others simply forward all travel and price change data to RAO. Of particular interest are the columns listing the price of the item and the 10% buffer monies. AA's carefully check these to insure that buffer funds are released as soon as possible.

3. Department Chairmen.

Department chairmen are concerned with the overall status of the various accounts in their department. Some chairmen track the percentage spent to date in a given account, initial balance and amount remaining, difference between planned and actual expenditures, amount of buffer funds being retained and funds' expiration date. While PI's monitor individual transactions, department chairmen are more concerned with the "big picture." Department chairmen guard against abuses, determine the reasons for an account being ahead of or behind schedule in terms of total expenditures, and verify that funds are not over or under-obligated. This control becomes particularly critical as the funds' expiration date approaches.

Department chairmen are entrusted with overseeing research projects and safeguarding funds. In addition to the duties already noted, they authorize all travel (with the exception of their own) and either delegate approval authority or personally authorize all purchases. However, chair-

men generally do not compare proposed transactions against the RAO report or budget page.

PI's are prohibited from over-obligating or purchasing items unless they appear on the budget proposal. Further control is ensured through RAO's screening process.

Five department chairmen were interviewed concerning their information needs. General comments were made concerning the Comptroller and RAO presentations of research accounting data. RAO reports were characterized as being current, except during periods of high activity when recordkeeping was delayed. Chairmen also noted that RAO's currency was adversely affected by the fact that it did not necessarily receive timely price update information. Three chairmen noted that it required an excessive amount of time to regain 10% buffer funds and that this was particularly significant as the end of the year approached. Two chairmen described the Comptroller's accounts as consistently backlogged.

The fact that RAO and Comptroller records rarely agree with each other implies that only the lesser balance of the two is actually available for expenditure. Two chairmen stated that they trust the accuracy of their department purchase and travel records over both RAO and the Comptroller, although neither of these departments tracks labor costs. One felt that fewer layers of administration

should exist, since the present duplication of effort increases overhead costs. Another stated that PI's were being required to do excessive "policing" to increase the accuracy of both accounting systems.

The following specific needs were expressed:

- (a) Two department chairmen felt that the RAO report was better suited to administrative assistants' and PIs' needs than to theirs, as the level of detail concerning individual transactions was unnecessary. One chairman felt that the document identification numbers and category codes on the RAO report were extraneous. Another felt that consolidating all the changes in a particular transaction into a net status rather than showing each chronological event would be sufficient. Still another said that he would prefer a line item status for each of the budget categories on the proposal.
- (b) Four chairmen expressed interest in a performance style report format, which would conform with the budget page. This report would have the proposal's budgeted amounts in each category displayed with the obligated and expended quantities. Variance analysis could then be done readily to determine whether or not a project was on schedule with regards to spending and where change might be needed.
- (c) Two chairmen cited a user-friendly online database as the best way to promulgate research information. They preferred this online data be presented in the method described in subsection A.3.b. of this chapter.
- (d) It was felt by two chairmen that the periodicity of RAO reports could be modified. While recognizing that PI's and administrative assistants need reports twice per month, there are periods wherein the chairmen do not need to be informed. One chairman required reports only during the critical last few months of the year, while another chairman wanted them once per month during inactive periods and as each transaction occurred during busy times.

- (e) Two chairmen requested that support and faculty labor data be presented separately - showing the amount budgeted and the amount expended to date.

B. RESEARCH ADMINISTRATION OFFICE

The Director of Research Administration is charged with monitoring and administering the overall research program. He and the Division Deans ensure that research projects are appropriate for the needs of the Navy School.

In keeping with its role of overseeing research spending, the RAO attempts to ensure that a project's total obligations do not exceed its funding and that all expenditures are appropriately specified in the budget page. The RAO requires copies of all original budget pages and proposal modifications, as well as current balances for each research account to oversee project execution. Each transaction must be screened against the budget page and account balance prior to funds being officially obligated. Account balance information is obtained from the Last Line Report. The Last Line Report is prepared solely for internal use and contains the last transaction entered into each account and the current balance.

The RAO generates the RAO Report documenting project spending. This is provided to research personnel to answer their managerial needs. Since RAO maintains its own separate system of accounts, additional document processing and, hence costs, are incurred. Detailed data concerning

the identity of the travel order or PR and the funds being obligated must be extracted and entered into the database from each transaction as it is screened. Moreover, changes in items' prices and travel costs must also be input. This requires the RAO to obtain data from either the individual departments or the Comptroller's quarterly Research Reimbursable Report, in order to remain accurate. The RAO records' currency directly depends on the timeliness of these updates.

C. COMPTROLLER

The Comptroller accepts research funds on behalf of the Superintendent. He and the Deputy Comptroller are then responsible for ensuring that proper accountability for and identity of the funds are maintained, accounts are established and audited internally, and progress reports are produced. The Comptroller and Deputy Comptroller monitor account balances to ensure that the Anti-Deficiency Act (Title 31, U.S. Code (Amended), Section 1517) [Ref. 33] is not violated by funds being obligated or expended in excess of the total amount authorized.

Under direct funding, the Comptroller will need to track both research reimbursables and the direct O&M,N and OP,N funds. AAA balances will be compared with the amounts reflected on the local memorandum accounts, and any

disquieting trends or variances investigated. The Supervisory Fiscal Analyst, Reimbursable Accounting and the Budget Officer will be the Comptroller's middle managers for research funding.

Non-managerial personnel in the reimbursable accounting area, such as the various clerks and budget analysts, and the Labor Branch personnel will continue to use the same reports and data under direct funding as they have under the current system. Since non-DoN research will be conducted on a reimbursable basis, as it is presently, the procedures used to account for these projects will not be affected by the fact that DoN research will be directly funded. The reports employed by the reimbursable accounting and Labor Branch personnel were previously addressed in Chapter III, subsections B. and C. of this thesis.

Personnel assigned to accounting for the directly funded research accounts will require data similar to those handling reimbursable research job orders. However, the data entry format and reports employed will be those used with OPBUD monies, rather than reimbursable funds. The procedures which are currently used for the OPBUD and will be used in FY88 under direct funding of research are as follows:

1. Standing job orders are initiated for the OPBUD at the beginning of the fiscal year and as required by emergent needs. Each department is assigned an LMC and certain serial numbers for use with their documents.

2. When documents are received by the Comptroller's Office, they are reviewed against the Daily LMC Balance report to ensure that sufficient funds remain in the OPTAR. The accounting data are checked for completeness and correctness, and the job order number is compared against the item being ordered to ensure that the proper expense element is charged.
3. The document is then input into the memorandum accounts and the IDA-IIB, indicating its status as a commitment, an obligation or an expenditure. Analysts verify the accuracy of their data input by comparing each document to the WANG's Daily Post Report and the IDA-IIB Totals by Transactions Report.
4. Accounts are balanced on a monthly basis, and OPTAR Reports are then generated for each LMC on the WANG and compared to the Document Control File and the Job Cost Status Report.

D. AUTHORIZED ACCOUNTING ACTIVITY

NSC Oakland is charged with maintaining the official accounting records for NAVPGSCOL, liquidating its obligations and providing financial reports to NAVPGSCOL and senior activities. AAA reports NAVPGSCOL's accounting status to its major claimant, Field Support Activity (FSA), using the NAVCOMPT 2171 and NAVCOMPT 2199. [Ref. 32]

AAA provides the Report of Reimbursable Status (NAVCOMPT 2193) to reimbursable Research Sponsors, indicating the amount originally authorized, the reimbursements earned, and the reimbursements billed to date for a particular account. The difference between the amount earned and billed informs the sponsor of amounts which will be billed in the future, via Vouchers for Disbursement and/or Collection (NAVCOMPT 2277). [Ref. 32]

AAA is not a senior activity in NAVPGSCOL's chain of command. It does not take action concerning any discrepancies between the amounts actually obligated and those available for obligation. It is simply a service activity, centralizing the accounting, reporting and "bill paying" functions. Its information needs are therefore limited to the actual transactional data required for it to perform its fiduciary duties.

AAA requires detailed information on all NAVPGSCOL job orders, LMC's and transactions in order to initiate and maintain it's records. Reimbursable job orders must be accepted and entered into IDA-11B before costs can be input. (See subsection B.1.a. and B.1.b. in Chapter III.) In the case of OPBUD funds, however, costs are accumulated via standing job orders which all of the LMC's utilize. Hence, account initiation is not required. AAA obtains transaction data via the IDA-11B online terminals in the case of travel and purchases and via time cards, labor cards and the Faculty Certification Letter for labor data.

E. RESEARCH SPONSORS

Under direct funding, DoN sponsors will need to be aware for planning purposes of their particular allocated share of research effort and the costs of approved proposals. Sponsors will be notified of their allocated level by NAVPGSCOL.

will subsequently review and approve as many NAVPGSCOL proposals as their needs and allocation permit, and will then monitor the progress of those projects. Alternatively, DoN activities will be able to support emergent research needs by doing a functional transfer of funds during the POM process, wherein NAVPGSCOL's OPBUD will be increased and a commensurate decrease will be seen in the sponsor's funding level. In both of these instances, the funds will not be recoverable by the sponsor.

In the case of research performed on a reimbursable basis, sponsors provide the funds which are required to accomplish the research project. Upon NAVPGSCOL's acceptance of those funds, financial responsibility for the execution of the project is transferred from the sponsor to the school. These monies can be reclaimed, if unobligated, by the sponsor.

The Director of Research Administration and five of the most active PI's were asked to describe the nature of requests for accounting information which have been received in the past from research sponsors. Two PI's stated that they have never received a request for accounting information concerning a project from a sponsor, while the others described such requests as rare events. The Director of Research Administration estimated that he is aware of approximately ten inquiries made to the RAO annually.

PI's related the following reasons sponsors cited for needing financial data:

- a. As noted in subsection D. of this chapter, AAA provides monthly Reports of Reimbursable Status (NAVCOMPT 2193) to sponsors. Since these reports describe expenditures rather than obligations, they provide a misleading account status. Two PI's noted that sponsors had occasionally become concerned with an apparent lack of project progress, based on the amount of funds expended on the AAA report. In these cases, the concern had primarily been that the project completion date be met, not on the total funds expended.
- b. One PI stated that, if he requested that a project receive additional funding, the sponsor might inquire as to the way he planned to spend his current funding. This was perceived as attempt on the part of the sponsor to verify the need for the new funds.
- c. One PI had been approached by his sponsor to determine if any funds would be in excess, so that the sponsor could reclaim the monies for alternate purposes.

The professors interviewed did not know of any occasion in which a sponsor had specifically asked for a report displaying each transaction to demonstrate how funds had been used. However, the RAU report was provided to any sponsor who requested a report showing the financial status of its project. Alternatively, sponsors would ask PI's for the current "bottom line" total.

In short, reimbursable research sponsors have not generally been concerned in the past with the actual expenditures but, rather, with receiving the contracted end product. Specific accounting information has not been requested in the vast majority of cases. Evidently, sponsors

presently require little or no information concerning the execution of projects for which they have provided the funding. It can reasonably be assumed that sponsors will have even fewer data requirements regarding the way in which direct funded research projects are being carried out, since the funds will not be controllable by them. NAVPGSCOL should therefore anticipate questions oriented towards the state of completion of the project from both reimbursable and direct funded research sponsors. Additional inquiries regarding the bottom line total should be expected from the reimbursable research sponsors.

F. ACTIVITIES INDIRECTLY CONCERNED WITH RESEARCH

1. POM Process.

As discussed in Chapter IV of this thesis, numerous activities, such as the resource sponsor, POM participants, NAVCOMPT, SECNAV, CNO, and CMC will be concerned with determining the appropriate amount of resources to devote to the NAVPGSCOL research program. During the POM process, the focus will be on the total resources required to support the program, rather than on individual research projects. Hence, program estimates submitted by FSA (based on NAVPGSCOL input) will be used to make tradeoffs between alternative programs. [Ref. 37:p. 1-17]

2. Budget Formulation.

Program estimates submitted by major claimants are translated into budget estimates during the NAVCOMPT review process. [Ref. 37:p. 9] NAVCOMPT Budget Analysts will therefore review FSA's budget submission to ensure that the estimated costs of each program are in accordance with the OMB and POM guidance, that programs are priced appropriately, and that they are executable. [Ref. 36]

Consistency between the documented costs of a program and the estimated costs is critical. Cost performance data concerning the amount of resources budgeted and obligated and outlay rates in the previous year and the program's past performance in relation with its spending plan are also considered during this process. Generally the decisions made are based on information which has been obtained in some form from the activity itself, such as previous budget submission exhibits. [Ref. 36]

Budget Marks, or adjustments, are made on the basis of the Budget Analyst's estimate of the actual costs of a program. Hence, an activity's failure to properly justify the costs of a program will result in its funds being cut. These Marks are subject to reclama; that is to say, they may be appealed on the basis of additional arguments.

3. Budget Execution.

FSA requires AAA to report NAVPGSCOL's financial status to it on a monthly basis. As noted in subsection D. of this chapter, this is accomplished through the NAVCOMPT 2171 and the NAVCOMPT 2199 reports, which aggregate data on the activity level. [Ref. 34] Additionally, FSA maintains a detailed spending plan (NAVCOMPT 2179-1) for each activity in its claimancy. FSA retains these data at its level and reports the aggregate spending status of all the activities in its major claimancy to NAVCOMPT. This financial report is prepared at the allocation level, rather than for any particular activity. [Ref. 35]

NAVCOMPT utilizes the reports it receives from the major claimancies to combine accounting data from the various allocations, in order to give appropriation level reports to OSD. [Ref. 35] NAVCOMPT also may require more detailed accounting information to perform its budgetary functions. If, for example, specific details concerning the execution of NAVPGSCOL's research program were required by any command more senior than FSA, that command would be unable to extract those details from the reports it receives. FSA would be queried and would probably have to contact AAA or NAVPGSCOL to obtain the necessary facts. [Ref. 36]

Data can be thus be obtained at the desired level of detail to meet various users' needs. However, the reports generated become more general as the data are aggregated by more senior commands. Hence, NAVPGSCOL must maintain local memorandum records and an audit trail in sufficient detail to answer both its own needs and other activities' emergent questions.

During budget execution, FSA will compare NAV-PGSCOL's actual reported expenditures against its spending plan (NAVCOMPT 2179-1) and explore the reasons for variances. Similarly, the NAVCOMPT Budget Analyst assigned to monitor FSA will track the claimancy's performance. Failure to expend O&M.N funds as planned can result in a reallocation of resources by higher authority. Hence, some mutually acceptable measure of research performance, coupled with prompt reprogramming of research effort when necessary, will be important to ensure NAVPGSCOL's research program is executed at its planned level. [Ref. 36] Table 1 presents a summary of the various user's information needs.

TABLE 1. SURVEY OF USER NEEDS

	SC	PI	AA	DC	RAO	COM	AAA	RS*
Unobligated balance of funds		X	X	X	X	X	X	X
Transactions and labor charged to account (individual)		X	X		X	X	X	
Funds Expiration Date		X		X	X	X	X	
Transactions with non-final prices		X	X		X	X	X	
Total buffer funds withheld		X	X	X	X			
Funds available for Expenditure (balance less buffer)		X	X	X	X			
Document Identification Number		X	X		X	X	X	
Document Processing Status		X			X			
Required Delivery Date		X						
Total labor reservation		X				X		
Changes to status of item listed sequentially		X						
Weekly reports (mid-May through FY-end)		X						
Timely price change updates		X	X	X	X	X	X	
Changes to status of item aggregated				X				

TABLE 1. SURVEY OF USER NEEDS (cont.)

	SC	PI	AA	DC	RAO	COM	AAA	RS*
Line item status for each budget page category				X				
Report formatted like the budget page				X				
Total Budgeted, obligated, and expended funds				X				
Reports frequency tied to spending pace				X				
Support and Faculty labor shown separately				X	X			
Budget pages and proposal modifications		X	X	X	X	X		
Source of funds and restrictions		X	X	X	X	X	X	
LMC or Reimbursable Account Number		X	X		X	X	X	
Labor as it is expended					X	X		
Aggregated data from Official Records	X							X
Specific details as needed	X							
Labor as it is committed					X			

Where: COM=Comptroller; RS=Research Sponsor; SC=Senior Commands;
 PI=Principle Investigator; AA=Administrative Assistant;
 DC=Department Chairmen; RAO=Research Administration Office;
 and AAA=Authorized Accounting Activity.

* Highly unusual. Information generally not requested.

VI. ANALYSIS AND RECOMMENDATIONS

The objective of this thesis is to determine the most useful, efficient and cost effective method to account for research monies at NAVPGSCOL. This chapter will, therefore, address:

- A. Official accounting system,
- B. Memorandum accounting system.
- C. Department memorandum accounting system,
- D. Organizational structure.
- E. Internal controls, and
- F. Internal Review.

Each recommendation will be preceded by a brief description of the current practice and followed by a discussion which is relevant to that particular recommendation.

A. OFFICIAL ACCOUNTING SYSTEM

1. Use of the RMS by AAA

Research and other reimbursable accounting data are presently encoded so that the official records maintained by AAA can summarize all reimbursable accounts, but reports cannot be generated solely for research. Decisions will be made during the POM process concerning directly funded research which will require such information. Hence, this researcher examined the possibility of devising a new system

of accounts for official record keeping purposes, which might be more responsive to user needs than the RMS system.

RECOMMENDATION 1:

NAVPGSCOL should continue to use the RMS accounting system and the IDA-IIB software package.

"Ashore Naval Commands employing O&M,N resources are required to budget, account, manage and report these resources under RMS." [Ref. 7:p. D-17] Deviations from this requirement may be accomplished through the concurrent approval of the major claimant, Office of the CNO, and NAVCOMPT. [Ref. 8:pp. 1-9] However, the difficulties noted currently in compiling research accounting data can be resolved more expeditiously, by simply revising the encoding system.

The RMS system is a powerful accounting tool. Replacing RMS on a local level would require greater quantities of labor than NAVPGSCOL possesses and would create further integration problems with the remainder of the DoN accounting system.

2. Changes to the Accounting Data Encoding Method

There are three possible methods of identifying research accounting data separately in RMS. Each is discussed briefly below, and one is recommended.

a. Utilizing a SAG for Research.

Utilizing a separate SAG would allow data to be compiled under the functional area of Mission, Research.

Research accounting information would be displayed vertically in a single column on the UMR "C" Report. (See Figure 17.) Total research expenses would appear in the bottom line of the research column. As this report can be prepared on the responsibility center level (the total research program) or the cost center level (the research effort of a particular department), it would answer the Comptroller's and senior activities' information needs.

This option would necessitate that NAVPGSCOL request approval from CND to employ a new SAG. Since LMC's are currently assigned at the cost center level (i.e., by Academic Department), this would still require that new LMC's also be employed for each account.

b. Utilitizing a New UIC for Research.

Employing a new UIC for research would effectively make the research function a separate activity for accounting purposes, rather than part of NAVPGSCOL. In this case, funds would be received on a separate Resource Authorization (NAVCOMPT 2168-1). Expenses would be reported on the UMR "C" Report for the research UIC, as is presently done in the case of tenant commands.

Employing a new UIC would also serve management's need to aggregate research accounting data separately. However, use of more than one UIC to identify a

command is not encouraged, unless it is the only way to meet a command's requirements. [Ref. 8:p. 2-7]

c. Utilizing New LMC's for Research.

Employing new LMC's would enable NAVPGSCOL to aggregate research accounting information according to the location of the spending. Each research account would be assigned a separate LMC and tracked in a manner similar to an UPTAR. The UMR "C" Report could then be prepared for that particular research account, all of the accounts in a department, or all of the departments (i.e., the total research program).

An additional benefit can be recognized by incorporating unique characters for research into the existing LMC system. This would allow personnel to readily differentiate research transactions from non-research OPBUD and reimbursable transactions. Currently, the letter "R" for reimbursable and a two digit alpha code, which corresponds to the PI (not an LMC), is incorporated into the job order number of all research reimbursables. This numbering system is designed to enable personnel to detect the source of any accounting errors which may result from reimbursable expenses being charged to the school's OPBUD. Using the new LMC's in research reimbursable job orders in place

of the the current two digit PI alpha code would be consistent with the structure of reimbursable job order numbers yet would identify the LMC to which costs are being charged.

Job orders used with the OPBUD are structured differently from reimbursable orders. Five-digit standing job order numbers are used with the OPBUD, where the second and third digits are the alpha characters from the appropriate LMC. Currently, the LMC's are assigned at the department level, rather than for individual PI's. If new LMC's were assigned so that the alpha characters were unique to research, it would enable personnel to visually differentiate on reports between the costs charged to standing job orders for research LMC's and non-research LMC's.

RECOMMENDATION 2:

NAVPGSCOL should revise its method of encoding accounting data. The LMC system should be redesigned to allow research data to be aggregated. NAVPGSCOL should assign LMC's so that there is no duplication between the alpha characters currently assigned, A-J, and the ones which will be used for research.

This option is preferred because it simply requires NAVPGSCOL to increase the existing LMC list to include each direct and reimbursable research account. This does not require external approval. Reports could then be prepared at the desired level of detail. Since the LMC would correspond to a given research account, all expenses reflected on the UMR "C" Report would be associated solely with research.

Hence, this method would also yield the type of data required by the Comptroller and senior activities. Utilizing unique alpha characters for research LMC's will minimize potential confusion and enable personnel to identify research LMC's separately from all other LMC's.

B. MEMORANDUM ACCOUNTING SYSTEMS

1. Use of LMC's in NAVPGSCDL's Memorandum Accounts

An activity's memorandum accounts must be compatible with the AAA's official system in order for management to be able to properly employ them. Document identification numbers and account codes used must, therefore, be the same.

As stated in recommendation 1, the RMS system is the most expeditious method for AAA to perform NAVPGSCDL's research accounting. This is the system which is being used currently. Hence, many of the procedures being employed can and should be continued with regards to the reimbursable research accounts. However, procedures must be established to account for the directly funded research projects, as discussed below:

RECOMMENDATION 3:

NAVPGSCDL should employ the same data encoding mechanism (i.e., LMC's) in the memorandum accounts as was recommended for use by the AAA (Recommendation 2).

This will ensure the compatibility and comparability of reports furnished by AAA and by the memorandum system.

2. Computer and Software Considerations

a. Dual Data Input to Official and Memorandum Records.

The Comptroller's memorandum records are currently maintained on a WANG hard disk-drive computer. NAVPGSCOL does not possess the software required to permit the WANG to interface with other computers. Hence, virtually the same accounting information for travel and PR's is entered separately into the IDA II-B and WANG.

RECOMMENDATION 4:

NAVPGSCOL should investigate the cost effectiveness of obtaining a computer system which is capable of inputting travel and purchases simultaneously to the official and memorandum accounting systems.

The labor cost savings of entering data in this manner would be considerable. Moreover, the number of errors made should decline. At the very least, this would ensure the compatibility of data contained in the IDA and memorandum systems, thereby enabling analysts to find and correct problems more readily.

Means of implementing this recommendation have been reviewed by NAVPGSCOL personnel in the past. Although the current AIMS software package does not have the necessary capability, WANG Basic software could be used. However, time would be required to develop the programs, and this work would have to be performed by outside contractors at a

cost which was estimated to be approximately \$25,000 at that time. It was felt that a computer system (locally referred to as an "Administrative Assistant") which would link the Comptroller's Office, the Supply Department and the Research Administration Office was required. The WANG did not possess the capacity for this role. Since delivery of the WANG software was not anticipated to significantly precede the "Administrative Assistant", it was not considered cost effective to pursue it further. [Ref. 30]

b. Transfer of Labor Data Between Wang Files.

In the case of labor, data are entered into the WANG by Labor Branch personnel for payroll purposes. Upon receipt of the Transaction Listing from AAA, the actual labor entered into the IDA-IIB is compared to the WANG report previously generated by the Labor Branch. Labor data are then input on the basis of the Transaction Listing to each reimbursable research account by the budget analyst. The WANG is not presently programmed to allow personnel to input labor data to the Payroll Budget File and then read it, once verified against the Transaction Listing, into the individual research reimbursable accounts.

Recommendation 5:

NAVPGSCDL should make the necessary software adjustments required to allow labor data to be transferred between files in the WANG.

The AIMS software package permits applications to obtain data needed in another file without redundant operator data entry, provided the appropriate files are linked. Currently, the Labor files associate the job order with the costs. Hence, a "double bounce" procedure, in which the computer would first search the disk to ensure a valid research job order exists and then post the appropriate account, is feasible. This would require some reprogramming to the WANG, but could be accomplished by NAVPGSCDL personnel. Thus, labor charges recorded in the Payroll/Budget Master could be compared with the Transaction Listing received from AAA. Those transactions which did not concur would be investigated further, while the remainder would be batch-posted, thereby avoiding dual entry of labor into the memorandum accounts and separate posting of each account, both of which procedures are time and labor intensive.

3. Conversion of Memorandum Accounts to an Online System.

A serious lack of integration of accounting information exists at present. Departments maintain their own accounts which they supplement with and compare to the RAO

report. However, frequently the data contained in department records do not concur with either the RAO's or the Comptroller's data.

Departments are effectively permitted to spend only the lesser of the RAO and the Comptroller's account balances. This causes communication problems. Additionally, it tends to result in a duplication of accounting efforts. Departments respond by employing progressively more sophisticated accounting systems and becoming more defensively oriented in their recordkeeping. As a result, excessive amounts of documentation are currently maintained by most departments.

Personnel generally have terminals or IBM PC computers with modems in their offices, which permit them to link to the NAVPGSCOL IBM mainframe computer. Hence, if memorandum accounts were maintained on an IBM-compatible computer, it would be possible to configure the software to permit users to access accounts online on the current hardware.

RECOMMENDATION 6:

NAVPGSCOL should use or, if necessary, obtain a computer which is compatible with existing modems and terminals for memorandum accounting purposes and implement a read-only capability for users. Modems should be employed to allow users to access accounts via PC's. Passwords should be utilized to ensure the confidentiality of accounts, so that only the PI, his department chairman, RAO and Comptroller's Office personnel would be able to access a given account.

Widespread interest in employing an online database for research accounting data exists at NAVPGSCOL. This would permit the various users to access a single presentation of the most up-to-date information, while decreasing the required frequency of hard-copy reports. However, it is important to protect the security of the information in an online database. Hence, only Comptroller Office personnel should be authorized to enter data into the system, and only those individuals who will actually use an account status (department chairmen, the PI and RAO) should be able to obtain it. PI's would have a password for their account, whereas chairmen would hold a master password for the all of the accounts held by PI's in their department. RAO would have access to all accounts.

4. Research Report Design

a. Format

A research report such as the one presently prepared by RAO contains the necessary level of detail for PI's and Administrative Assistants. However, to properly address Department Chairmen's needs requires a report format which compares actual spending to the amount originally budgeted. This allows the manager to appraise the extent to which the project is meeting its spending plan.

RECOMMENDATION 7:

The Comptroller's Office should prepare research reports for PI's and Administrative Assistants which are substantially the same in design and format as the current RAO Research Report. As direct funding is implemented, desired changes to the format may be made. Department Chairmen should receive an additional report prepared in budget format. (See Figure 26.) Research Sponsors should be provided an account bottom line status upon request, and, if a financial report is required, these data should be presented in the Department Chairman's reporting format (Figure 26).

Conversely, the information needs of activities senior in the chain of command to NAVPGSCOL, such as the major claimant, NAVCOMPT, and POM participants, are met by reports generated directly by AAA. Implementation of the previously recommended change to the data encoding method will enable AAA to produce suitable aggregations of research accounting information.

b. Types of Funds

Reimbursable funds are accounted for in the RMS system so that the costs of both expense and investment items are included together in the account. Expense information can be displayed for both direct and reimbursable research accounts by using the UMR "C" Report. Managers can thus compare the spending plan against budget execution. OP.N funds, on the other hand, cannot be accounted for in RMS. Hence, the UMR "C" Report will not reflect all the costs accumulated for a particular direct-funded research project.

[illegible]

Figure 26. Department Chairmen's Research Report

RECOMMENDATION 8:

NAVPGSCOL should design its locally prepared Research Reports to include appropriate OP,N expenditures, so that users are made aware of the total status of the research project in a single format.

Research accounting reports are prepared to answer user's information needs. While the memorandum accounts must maintain separation between the O&M,N and OP,N costs, reports should not exclude one or the other but should present both in the budget page and detailed formats previously described. The research reports would be reconcilable to the official reports. However, Comptroller's Office personnel would not, typically, have any need to do so, since the latter would be purely researchers' managerial reports. Reconciliation of the two reports could be accomplished by summing LMC's OP,N expenditures with the total expenses reflected on the LMC's UMR "C" Report.

5. Discontinuation of Accounts.

It is recognized that AAA's periodic reports are insufficient for managerial purposes. Hence, all Navy activities are encouraged to maintain supplemental records, containing sufficient detail to allow them to obtain the true remaining balance in a funds authorization by comparing the periodic AAA report with documents submitted subsequently. It is not necessary, however, to maintain two such sets of accounts. Research memorandum accounts of similar

purpose and detail are presently maintained by both the RAO and the Comptroller's Office.

RECOMMENDATION 9:

The memorandum accounts presently being maintained by RAO should be phased out as the Comptroller's records are modified to provide the information described in Recommendation 7.

Sophisticated memorandum accounts are generally instituted when the formal system fails to provide timely reports or otherwise does not answer user needs. [Ref. 38:pp. 92-93] The NAVCOMPT Manual [Ref. 10] specifically addresses this issue, stating that any expansion of accounts beyond the basic requirements should not assume the fiscal office's accounting responsibilities. It further directs that "... any expansion of memorandum records caused by inaccurate reports should be allowed to exist only as long as it is needed to enable the fiscal office to improve the quality of its reports." [Ref. 10:pp. 9-76]

The "official" memorandum accounts at NAVPGSCOL are maintained by the Comptroller's Office. RAO should not, therefore, duplicate the Comptroller's accounts for any longer than it is necessary to ensure that those records are adequate to meet users' research related information needs. Problems were noted during the recent audit, as stated in Chapter III. However, the personnel shortage which contributed to those difficulties has been corrected. Hence, an

appropriate date should be established, by which time the Comptroller's Office will be ready to meet researcher's information needs. The accounting functions should be paralleled until the RAO's records are no longer required.

C. DEPARTMENTAL MEMORANDUM ACCOUNT SYSTEM

There are presently many variations in departmental recordkeeping methods. Most departments maintain more documentation than is necessary. It is common for departments to hold photocopies of all paperwork associated with accounts, including internally generated forms.

RECOMMENDATION 10:

All departments should retain the forwarded copy of each travel order prepared by the Travel Order Office, the pink copy of every FR, all purchase orders, and warehouse receipts, by research account. Departments should show the status of each transaction on the appropriate account's log sheets.

Retaining photocopies of all paperwork submitted, including worksheets, is a common practice on the departmental level. This is both unnecessary and inordinately expensive. It is important that record maintenance be standardized to ensure uniformity of recordkeeping and a proper audit trail, without duplicating the memorandum accounting function.

D. ORGANIZATIONAL STRUCTURE

1. Document Screening

Travel orders and PR's are presently screened by the RAO's Research Administration Assistant. Having ensured on the basis of the RAD accounts that the documents are prepared correctly and that sufficient funds remain, she forwards them to the Comptroller's Office. The Research Administration Assistant's reviewing efforts are then duplicated by the Travel Clerk and Edit Clerk, who re-verify the documents against the Comptroller's records.

RECOMMENDATION 11:

Duplicative screening processes should be discontinued. Research travel orders and PR's should be reviewed against the research proposal budget page and the Comptroller's records. This function should be performed by the Research Administrative Assistant.

Dual document screening constitutes an unnecessary expense. As the Research Administration Assistant is very familiar with the various budget pages, PI's and departments, she is far more likely to detect any errors. Moreover, she has been the long-term point of contact between the Academic Departments and the Comptroller's Office and, so, is adept at interacting with both and providing information support for researchers.

2. Travel Order Preparation

Travel orders are prepared separately by each department. While some departments have centralized this

function, others expect any of their secretaries to prepare travel orders as required. There is a general lack of familiarity with the proper procedures on the part of the numerous individuals who prepare orders infrequently. This results in many travel orders being prepared incorrectly and further manhours being expended in correcting and rerouting paperwork.

RECOMMENDATION 12:

Research Travel Orders should be prepared by a group of people who are trained in the proper procedures and centrally located.

Some departments currently employ internal travel worksheets, from which travel orders are prepared. (See Figure 27.) In addition, the Comptroller requires a different travel worksheet for audit trail purposes. (See Figure 28.) A single worksheet could be implemented for all research travel orders which would serve both purposes. (See Recommendation 14.)

The worksheet would be prepared by the department, approved by the Chairman, and forwarded to the Travel Office. Upon completion of the orders, a copy would be provided for the department files, while the remaining copies would be processed through the system.

TRAVEL WORKSHEET

Please note that travel requests should be submitted at least 10 days prior to departure date; 15 days prior if you want an advance.

DATE OF REQUEST _____

Name: _____ Title: _____

SSN: _____ Office Phone # _____

Type of orders: Single / Group / Invitational (ITO) / Fund Cite
/No Cost To Government

Do you plan to drive to your destination? YES NO

Destination: _____

Desired date/time of departure _____

Desired date/time of return _____

Purpose of travel: _____

!!!!PLEASE DO NOT MAKE RESERVATIONS WITH INDIVIDUAL AIRLINES!!!!

FILL OUT ATTACHED PRR FORM

PLEASE MAKE RESERVATIONS

RESERVATIONS ARE MADE

Airline _____

SATO _____

Rental Car _____

Rental car _____

*Hotel #1 _____

Hotel _____

#2 _____

NAME _____

#3 _____

Phone # _____

** Request authorization for use of TAXI / LIMO / POV in and around TDY
area. No authorization needed for transportation to/from airports.

Funding: Cost Code/Job Order No. _____ Seg: _____

Registration fee required? YES/NO \$ _____ (Refer to memo 9 Oct 85)

Date fee required by _____

Advance required? Yes / No (Will be ISSUED 2 days prior to date of de-
parture unless otherwise requested)

*Utilization of government quarters required, if available, when
traveling to another government post /installation, otherwise orders
must be stamped to indicate nonavailable.

Any special or unusual arrangements should be brought to the attention
of the travel clerk BEFORE travel orders are processed.

Figure 27. Travel Worksheet (Departmental)

Name: _____ SSN: _____

Department: _____

Date of Travel: _____

Itinerary: _____

Annual Leave Desired: _____

Purpose: _____

Justification: _____

Funding Source for All of Travel: _____

Split Accounting: _____

Justification for Week-end Travel: _____

(Traveler's Signature)

FOR FURTHER INFORMATION REFER TO NAVPGSCOLINST 4650.4A.

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3. Data Entry Personnel.

Generally, accounting data concerning purchases and travel are now input by the Supervisory Fiscal Analyst, Reimbursables (SFA,R) personnel into the IDA-IIB system for each reimbursable account and by Supervisory Fiscal Analyst, Operating Budget and Accounting (SFA, OPBUD) personnel by LMC for OPBUD expenses. All accounting data are input by the respective offices for the local memorandum accounts.

There are, however, definite managerial advantages to consolidating all research accounting within the same office. Managerial oversight of the total costs of the research program is simplified. Moreover, support of research personnel's information needs is improved by having a single point of contact.

RECOMMENDATION 13:

Directly funded research accounts should be maintained by the personnel assigned to the SFA,R office, rather than the SFA, OPBUD.

As the hardware and software used in both the official and memorandum systems to account for reimbursables is the same as that used for the OPBUD, this recommendation could be readily implemented. Since the procedures used to input information into the systems differ, however, personnel retraining would be required. A separation of duties between personnel performing accounting duties for directly funded

and reimbursable accounts would be advisable to minimize errors.

E. INTERNAL CONTROLS

1. Safeguarding Travel Order Worksheets.

Recommendation 12 advocated establishment of a Travel Order Office which would use worksheets to prepare orders. This procedure would require, however, that internal controls be instituted as follows:

RECOMMENDATION 14:

Departments should be issued pre-serialized travel worksheets by the Travel Office. The location of each worksheet would be recorded in the department and Travel Office logs. All travel worksheets would require the Chairman's approval prior to submission. Travel worksheets would accompany the orders until the Deputy Comptroller's final signature was obtained and then be retained in the Comptroller's Office for audit purposes.

The travel worksheet will be the document approved by the Department Chairmen. Hence, it must be properly safeguarded to ensure that unauthorized travel orders are not prepared. Using a system of pre-serialized and logged worksheets, as described, would allow the completeness and validity of travel to be verified.

2. Purchase Requisition Approval Process.

There is presently no uniform procedure for PR approval. In some departments, the Chairman signs all PR's, whereas in others the PI has approval authorization.

RECOMMENDATION 15:

Department Chairmen should review and sign all purchase requisitions.

Chairmen are responsible for monitoring the propriety of spending within their departments. They should, therefore, either approve all research purchases within their departments or specifically delegate this responsibility to the PI's. This practice allows chairmen to monitor the priority assigned to the PR and the appropriateness of the item being obtained.

F. INTERNAL REVIEW

Recent audits reveal a need for increased accuracy in research accounts. The magnitude of the funds involved, coupled with the large number of accounts and the entrepreneurial nature of research, causes this to be a potentially vulnerable area. Research should therefore be closely reviewed.

RECOMMENDATION 16:

A statistically valid sample of accounts and research transactions should be internally audited annually. This review should be conducted over the course of the entire fiscal year.

By spreading the review process over time, any disruptive effects on the Comptroller's Office will be minimized, and the Internal Review Staff's workload will be balanced. Additionally, any time periods in which records have a

higher or lower accuracy rate due to fluctuations in the workload will be identified promptly.

G. AREAS MERITING FURTHER STUDY

RAO currently ensures that funds are not overobligated by maintaining a 10% buffer fund until the final cost of a transaction is determined. This percentage has been in effect for approximately 10 years and is not tied to inflation or any other external factor.

While it is entirely appropriate to maintain a buffer, it is questionable whether or not it should be continued in the same amount as at present. The method used by the Comptroller to safeguard the OPBUD is to estimate the funds which will be required for price changes in July. Simultaneously, he will be reallocating resources from OPTARS throughout the command in an effort to maximize NAVPGSCOL's programs. Sufficient funds to liquidate these estimated price changes is administratively obligated at the end of the fiscal year when the accounts are closed out. Given that the DoN research effort will be funded on a direct basis in future, the Comptroller's procedure might be more appropriate. Additionally, the 10% figure should be addressed. Studies of actual price changes should be made to determine a realistic reserve percentage. It is important that NAVPGSCOL utilize its research funds as efficiently and

effectively as possible. Failure to meet an acceptable spending rate could be cause for funds being reallocated to other commands by senior activities at Mid-year Review.

H. CONCLUSIONS

NAVPGSCOL will undergo organizational change as a result of direct funding. In order to maintain accurate and timely records, while meeting the needs of the many research related parties, revisions to the existing memorandum accounting system are required. Implementation of the recommendations stated in this thesis will enable NAVPGSCOL to achieve a more efficient system of accounts.

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c.1 An analysis of the
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